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ADDRESS EDITORIAL TO:
The Editor, Australian Orchid Review, 14 McGill Street, Lewisham NSW 2049 Australia. Phone: (02) 560 6166.
EDITORIAL ASSOCIATES:
QUEENSLAND:
Mr Frank Oelkers, 419 Robinson Road, Geebung 4034.
NORTH QUEENSLAND:
Mr Ray Robinson, P.O. Box 129, Townsville 4810.
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contact these secretaries:
NSW: Miss B. Oldfield, 61 Mountford Avenue, Guildford 2161.
Phone: (02) 632 5712.
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Phone: (07) 273 1127.
VICTORIA: Mrs I. Hutchins, 37 Elliot Street, Mordialloc 3195.
Phone: (03) 580 4917.
SOUTH AUSTRALIA: Mr Glen Heylen, Box 730 G.P.O. Adeliade 5001.
Phone: (08) 44 4255.
WEST AUSTRALIA: Mrs L. Manning, P.O. Box 1122, Booragoon, 6153.
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TASMANIA: Mr J. F. Smith, 11 Warren Court, Howrah 7018.
Phone: (002) 44 1555.
NORTHERN TERRITORY: Honorary Secretary, P.O. Box 38493, Winnellie 5789.
Phone: (089) 32 1977.

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Text & Photography — Ray

Much time has now passed since my first introduction to the stunning and diverse genus *Masdevallia.* During this period a great deal of experience has been gained mainly through observation and a commitment to an in depth understanding of the genus involved. Masdevallias originally came to me by chance as a few extras in a shipment of flasks from the U.S.A. It was surprising how well they grew and indeed many from those first deflaskings flowered, much to my amazement, within the first 12 months. I soon experienced a blossoming of interest in this wonderful re-discovery of a genus last popular at the turn of the century.

ellous allias . . . Hybrids

Thomson, Mooroolbark Orchids

A great surge of interest followed the flowering of the first of the new generation hybrids. *M.* Angel Frost, *M.* Copper Angel among others and the sensation of *M.* Harlequin which was the mating of *M. uniflora* x *M. calocodon,* now renamed *M. yungasensis* var. *calocodon.* Not only was this creation of the Beall nursery in the U.S.A. unusually beautiful, with its crystalline light mauves and cerise stripes, but here we had a new *Masdevallia* of easy culture and a reliable and prolific flowerer, originally and still promoted as a cool grower. Many enthusiasts made the error of confusing cool with cold and a number of those original seedlings perished when grown only under shade cloth and without proper covering during our harsh, wet southern Australian winters. If kept just damp, definitely not wet, these little gems will take temperatures close to zero, but should never be 'frosted'. Give them the luxury of 5° to 6°C. minimums and growth can only be described as rampant, developing quickly into an easily handled specimen.

Arriving on the hybrid scene at around the same time *M.* Juno also a *M. uniflora* hybrid but with *M. corniculata* as the other parent, has also been a successful mating, but this time without the attractive stripes of *M.* Harlequin which has a striking visual impact. Many of the *M.* Juno I have seen, while flowering nicely, exhibited yellow green leaves, a sure sign of too much light. This is always unfortunate as the total concept of a

Top Left: *M.* Heathii . . . an oldie but a goody, the choice mating of *M. veitchiana* with *M. ignea* (syn. *M. militaris*) lifted the dorsal and intensified the colour. Left: *M.* Doris . . . also goes way back, here *M. triangularis* was mated to the difficult species *M. racemosa* to produce a most vigorous, easily grown sequential flowering hybrid of charm and character midway between the two parents. Top right: *M. veitchiana x M. gilbertoi,* new directions in *Masdevallia* hybridising, most flowered orange but this clone near yellow. Right: *M.* Angelfrost mating *M. veitchiana* to *M. strobelii* produced this stunner and the name says it all.

beautiful flower on a healthy plant is destroyed. Hybridising along the lines of the two aforementioned crosses is important as new colours are being created which hitherto have been lacking because of over use of that very beautiful but dominant species *M. veitchiana.*

No lover of *Masdevallia* or any orchid for that matter, could ever dispute the striking appearance of *M.* Falcata or *M.* Heathii, two old favourites using *M. veitchiana* along with *M. coccinea* and *M. ignea* syn. *M. militaris* respectively, but they are in varying shades of red as have been so many other attempts. Mating *M. veitchiana* with *M. strobelii,* now named *M.* Angel Frost and *M. triangularis* which is *M.* Copper Angel gave good deep yellows, but it will take successful matings using less dominant species such as *M. coccinea,* in all its glorious colour variations and *M. tovarensis* to give the cooler and lighter shades with patterns, stripes and spots which appears to be the normal path down which a hybridist travels. Few species have better striping than *M. calocodon* and *M. chaparensis* has proved it is able to pass on its spotting.

M. Harlequin would appear to offer exciting possibilities. We have been successful with a mating of it between *M.* Angel Frost, *M. floribunda, M. coccinea* v. *harryana* and *M. wageneriana.* A definite goal is being sought here as small compact plants with many colourful medium sized flowers are in great demand. Imagine also, the result of using *M.* Harlequin along with a multi-floral such as *M. caloptera,* this cross is already underway along with *M. caloptera* x *M. veitchiana* for medium sized multi-floral reds.

Although primarily involved with the propagation of the species during these passed years one cannot be completely involved with a genus without wondering what two favourite species crossed together may produce. With *Masdevallia* we are at the stage *Cymbidium* was in the 1930s and 1940s and it is important that many of the mistakes made with that genus are not repeated with *Masdevallia.* By this I mean that breeding should be done with an end result in mind and not just because two flowers are simultaneously open. Already some drab and immediately forgotten crosses have been made and flowered and such disappointments are bad for the

Top: *M.* Falcata 'El Globo' here we must have close to the ultimate development thus far, colour intensity and shape being exceptional. Bottom: *M.* Falcata "Darling Heart" comparison with *M.* Falcata 'El Globo' gives an idea of variation within the same cross.

genus as a whole. It is also good policy to go regularly back to a species in second and third generation breeding as, with all things alive, new blood and genetic material must be introduced from time to time to maintain vigor and healthy stock.

With this in mind I caution growers to beware, as there exists a virus. The Bean Yellow virus is widespread and is sometimes seen in South America and U.S.A. and I have observed it in Australian collections of *Masdevallia.* Yellow chlorotic streaking rather than a mosaic pattern and discoloured distorted leaves and flowers are the symptoms. Under unhygienic conditions the effects of this disease can be devastating to both plant and grower. Purchasing seedlings or flasks is a safe alternative to jungle collected plants, but in all cases plants should be rigorously inspected for anything suspicious. Quite often miserable two or three leaved divisions can so weaken a plant that it will quickly succumb to the disease and as all *Cymbidium* growers are aware, thus far there is no cure.

Very few natural hybrids appear to exist within the *Masdevallia,* but there are some, the most well known is *M.* Parlatoreana. This natural crossing of *M. veitchiana* and *M. barlaeana* was first described in 1879 with the reverse cross exhibiting definite floral differences and being known as *M.* Splendida. I bring this to your notice as a plant discovered by the late David Welisch of San Francisco and thus named *M. welischii* in his honour has shown strange tendencies in flowering habit and appearance when either selfings or sibling crosses have been made and subsequently flowered. Indeed some growers felt that maybe plants or seed had been mixed up but reports of flowers not true to type have come in from both Australia and U.S.A. which leads many authorities to believe that *M. welischii* may in fact be a natural hybrid and not yet stabilised enough to breed true to recognised type.

Candidates for parentage vary between *M. veitchiana* x *M. amabilis* or *M. barlaeana* or *M. davisii. M. veitchiana* is definitely in there somewhere and flowerings to date have had characteristics which may be traced to all four, however, at this writing the main candidates are *M. veitchiana* crossed either *M. barlaeana* or *M. amabilis* and some believe these last two species to be con-specific. If this

Top: *M. veitchiana* 'Terra Rosa' *M. veitchiana* 'Sol' x *veitchiana* 'Sol' this is line breeding at its very best, selfings however are slow growing and this clone took five years to flower, worth the wait though! Bottom: *M. notosibirica* one of the more unusual Masdevallias; it has been successfully mated with *M. veitchiana* and results will soon be known.

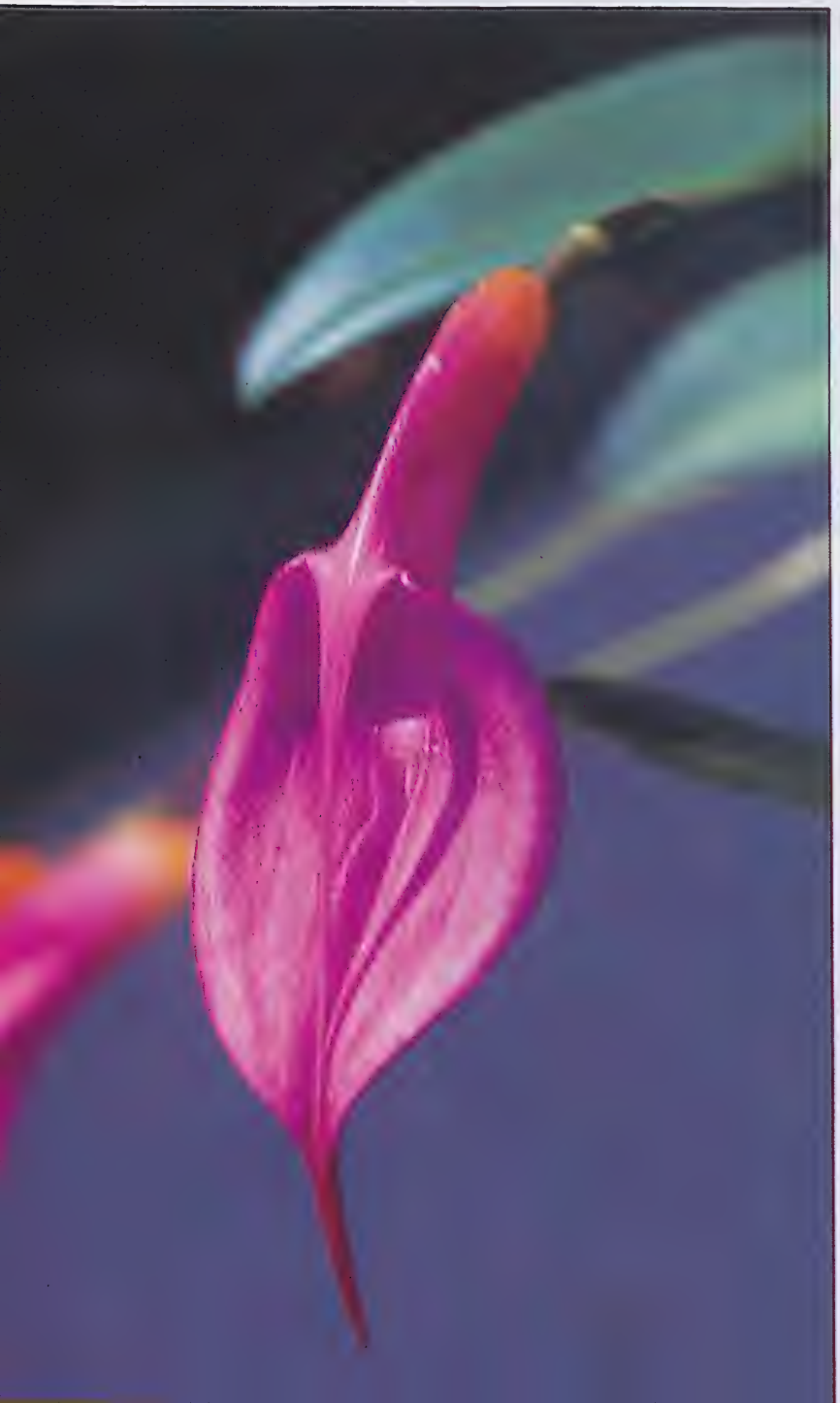
crossing is correct then the natural hybrid would have the name *M.* Splendens. When re-makes flower we should have the answer. This phenomenon is not without precedent, as the newly named *M. wubbenii* may be a natural hybrid between *M. triangularis* and *M. wageneriana.* It is my opinion that many examples of naturally occuring hybrids have in the past been mistaken and named as species; once again this is not without precedent in most genera. The *Dendrobium* x *kestevenii* saga within our own Australian orchidaceae is a good example of hasty and incorrect identification.

I believe with *Masdevallia* where a single example of a so called new species is discovered, that a plant which is often never seen again in the wild habitat may very well be a natural hybrid. This is of course purely speculation, but the remaking of any which are suspect will within a short time prove or disprove the theory, and that is the beauty of *Masdevallia* breeding; the short time taken from initial pollination to first flowering.

Indeed it is perhaps one of the very few orchid genera one may begin to hybridise with at a ripe old age and live to see the result and that must be one good argument in their favour. Yes, *Masdevallia* are truly marvellous and looking through the species list the imagination must surely have no limit when provided with the material of more than 350 separate and distinct species with which to work.

Recent examples of the incredible range of shapes and colours we may expect in the future may be found in innovative breeding from "J & L" in the U.S.A. Their *M.* Peppermint (*M. strobelii* x *M. calocodon*) *M.* Gremlin (*M. angulata* x *M. stobelii*) *M.* Glow Worm (*M. veitchiana* x *M. limax*) are all a delight, and closer to home June Page of Sydney has made *M. tovarensis* x *M. limax,* flowering and naming is anxiously awaited. Our own *M. uniflora* x *M.* Angel Frost should be equally exciting. There appears to be no limit to the combinations and it will be many years, if ever, before the full potential is realised.

What lies ahead? It goes without saying that the success of any flower must lie within its capacity to perform as a cut flower. Many growers, myself included, and the public just will not accept the modern idea of many orchid pot plants being throw away commodities after flowering has ceased. *Masdevallia* as an easy grower and prolific producer of flowers, at least once and with many hybrids, two or even three times per year, fits nicely into the permanent pot plant or specimen category. Flowers will be mostly enjoyed on the plant but we have experimented, as have *Disa* growers with cut flower performance. Most species have not performed well but *M.* Falcata, the cross between *M. veitchiana* and *M. coccinea* gives some insight into hybrid cut flower potential. Springtime cut flowers of *M.* Falcata have given excellent performance and have lasted up to ten days holding both shape and colour intensity; this seems to be a quality of the *M. coccinea* parent and tests indicate most hybrids with this species in the background will exhibit such floral longevity. Normal commonsense needs to prevail regarding cut flower display environment, as warm dry conditions will shorten useful bloom



Left: *M. rosea.* A beautiful species whose hybridising potential still remains to be explored.

Above: *M.* Harlequin. This crossing of *M. yungasenis* var *calocodon* and *M. uniflora* will influence breeding well into the future; the striping appears dominant and should be passed on to progeny; culture is easy.

MASDEVALLIA HYBRIDS
(registered through June 1988)

Name	Pod Parent	Pollen Parent	Yr. Breeder
Acis	*abbreviata*	*veitchiana*	1890 Hincks
Ajax	Chelsonii	*peristeria*	1896 Veitch
Alceste	Asmodia	*veitchiana*	1901 Veitch
Amesiana	*tovarensis*	*veitchiana*	1890 Sander
Andromeda	*fragrans*	*schroderana*	1976 Richardson
Angel Frost	*veitchiana*	*strobelii*	1982 J & L
Angel Glow	Angel Frost	Marguerite	1986 J & L
Angel Tang	*veitchiana*	*tonduzii*	1986 J & L
Angelito	Angel Frost	*sanctae-inesae*	1988 J & L
Asmodia	Chelsonii	*reichenbachiana*	1894 Veitch
Bocking Hybrid	*cucullata*	*veitchiana*	1899 Courtauld
Butternut	*stenorhynchos*	Angel Frost	1987 J & L
Cassiope	*coccinea*	*triangularis*	1892 Hincks
caudato-Estradae	*caudata*	*estradae*	1889 Veitch
Celia	*ephippium*	Kimballiana	1987 Albright
Chamberlainiana	syn. Shuttryana		1892 Lawrence
Chelsonii	*amabilis*	*veitchiana*	1880 Veitch
Circe	*schroederiana*	*veitchiana*	1898 Veitch
Claret Chalice	*uniflora*	*maculata*	1986 Beall
Confetti	*strobelii*	*glandulosa*	1988 J & L
Copper Angel	*triangularis*	*veitchiana*	1982 J & L
Copper Frost	Copper Angel	Angel Frost	1986 J & L
Courtauldiana	*caudata*	*rosea*	1889 Cookson
Curlei	*macrura*	*tovarensis*	1896 Curle
Diana	*wageneriana*	*caudata*	1977 D. Richardson
Dina	*coriacea*	*infracta*	1976 Tarlow (D.R.)
Don's Angel	*veitchiana*	*rolfeana*	1982 J & L
Doris	*racemosa*	*triangularis*	1894 Hincks
Estradae-Shuttleworthii	syn. caudato-Estradae		1889 Veitch
Estradae-xanthina	*estradae*	*xanthina*	pre1946
Falcata	*coccinea*	*veitchiana*	1899 Lawrence
Fraseri	*coccinea*	*ignea*	1882 Fraser
Frasero-ludibunda	Fraseri	*ludibunda*	pre1946
Freckles	Angel Frost	*decumana*	1988 J & L
Gairiana	*davisii*	*veitchiana*	1884 Veitch
Geleniana	*caudata*	*xanthina*	1887 Sander
Genie	*angulata*	*coriacea*	1981 McLellan
Glaphyrantha	*barleana*	*infracta*	1886 Veitch
Glow Worm	*veitchiana*	*limax*	1988 J & L
Gremlin	*angulata*	*stobelii*	1986 J & L
Gretchen Motter	Falcata	*maculata*	1987 Beall
Harlequin	*calocodon*	*uniflora*	1987 Beall
Heathii	*ignea*	*veitchiana*	1889 Heath
Heathii Mundyana	*ignea*	*veitchiana*	1891 Sander
Hebe	*coriacea*	*veitchiana*	1889 Hincks
Henrietta	*caudata*	*ignea*	1893 Ames
Hincksiae	*caudata*	Gairiana	1902 Hincks
Hincksiana	*ignea*	*tovarensis*	1887 Hincks
Hitomi	*uniflora*	*rolfeana*	1987 Nobuhara, O
Igneo-Chelsonii	Chelsonii	*ignea*	pre1946
Igneo-Estradae	*estradae*	*ignea*	1902 Lawrence

(continued on page 10)

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Masd. Harlequin x Gretchen Motter.
Masd. Harlequin x coccinea Harryana.
Masd. Harlequin x veitchiana Grandiflora. *
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life considerably.

Basic *M. coccinea* colours are red, yellow and white, so even just by breeding with that other robust species *M. veitchiana* a wonderful range of colours exhibiting durable cut flower qualities must exist within the genus. These should be soon available. Just imagine, for instance, the absolutely stunning and novel beauty of progeny from *M. coccinea* in all its many hues and colours mated to the highly successful *M.* Harlequin! Add to this cut flower quality and you have something new and very exciting.

Still much work remains to be done. As newly discovered species are cultivated and flowered new qualities will become evident; some of these qualities will, no doubt, be equated with cut flower production. We will look not only for colour but size, shape and a good strong upstanding spike. If a few more flowers per spike can be added without a great reduction in floral size, then we've got to be on the right track. The future appears very bright and with *Masdevallia,* time elapsing between the original concept and flowering of any cross may be as little as three years! This includes pollination, pod development, flasking and growth to first flower, truly marvellous . . . *Masdevallia.*

For further information on this fascinating group of plants see the Australian Orchid Review, Autumn 1988 and February, 1989.

(I am grateful to June Page of N.S.W. for assisting me with her editorial and typing skills during the preparation of this article.)

MASDEVALLIA HYBRIDS
(registered through June 1988)

Name	Pod Parent	Pollen Parent	Yr. Breeder
Imogen	*schlimii*	*veitchiana*	1904 Veitch
Jessie Winn	*davisii*	*tovarensis*	1893 Winn.
Juno	*uniflora*	*corniculata*	1987 Hill, TJ
Kimballiana	*caudata*	*veitchiana*	1899 Sander
Kimballiana Pourbaixii	same as above		pre1946 Pourbaix
Langleyensis	syn. Veitchiana-Estradae		1893 Hincks
Lawrencei	syn. xanthino-Veitchiana		1902 Lawrence
Leda	*arminii*	*estradae*	1895 Hincks
Macchu Picchu	*ayabacana*	*coccinea*	1986 Beall
Marguerite	*infracta*	*veitchiana*	1982 J & L
Mary Ames	Gairiana	*ignea*	pre1946
McVittiae	*coccinea*	*tovarensis*	1892 Thompson
Measuresiana	*amabilis*	*tovarensis*	1890 Sander
Mem. Albert Ballentine	*guttulata*	*weberbaueri*	1967 Ballentine
Mundyana	see Heathii		
Paradise Sunset	*triangularis*	*ignea*	1987 Paradise Orchids
Parlatoreana	*barleana*	*veitchiana*	natural hybrid
Peppermint	*strobelii*	*calocodon*	1987 J & L
Periacea	*coriacea*	*peristeria*	1975 Kuhn
Perky Peggy	*pachyura*	*militaris*	1987 S.B.O.E. (DR)
Pluto	*coccinea*	Gairiana	1899 Hincks
Pollyana	*triangularis*	*infracta*	1983 J & L (Kuhn)
Pourbaixii	see Kimballiana		
Prince Charming	*angulata*	*veitchiana*	1979 McLellan
Purple Heart	*coccinea*	*elephanticeps*	1985 S.B.O.E.
Rebecca	*amabilis*	*ignea*	1893 Ames
Red Baron	*maculata*	*coccinea*	1984 Beall
Redwing	*infracta*	*coccinea*	1985 S.B.O.E.
Ron Hawley	*uniflora*	*strobelii*	1986 Hawley-Levi
Rubicon	*coccinea*	Heathii	1988 Mayhead, P.
Rushtonii	*ignea*	*racemosa*	pre1946
Sedenii	syn. caudato-Estradae		1889 Veitch
Selfridgeana	*arminii*	*ignea*	pre1946 Sander
Shuttryana	*caudata*	*coccinea*	1892 Lawrence
Snowbird	*tovarensis*	*mejiana*	1982 J & L
Spooky	*caudata*	*angulata*	1980 McLellan
Stella	*coccinea*	*estradae*	1890 Hincks
Sugar Baby	*veitchiana*	*floribunda*	1988 J & L
Sunny Angel	*triangularis*	Angel Frost	1986 J & L
Urubamba	*ayabacana*	*veitchiana*	1986 Beall
Veitchiane-Estradae	*estradae*	*veitchiana*	1893 Hincks
Veitchiane-fragrans	*fragrans*	*veitchiana*	1903 Measures
Veitcchiano-Wageneriana	*veitchiana*	*wageneriana*	1898 Sander
Xanthino-veitchiana	*veitchiana*	*xanthina*	1902 Lawrence

NOTE: D.R = Don Richardson
S.B.O.E. = Santa Barbara Orchid Estate

The Interlopers

Text: R.D. Kramer Photography: Salvador Castelo

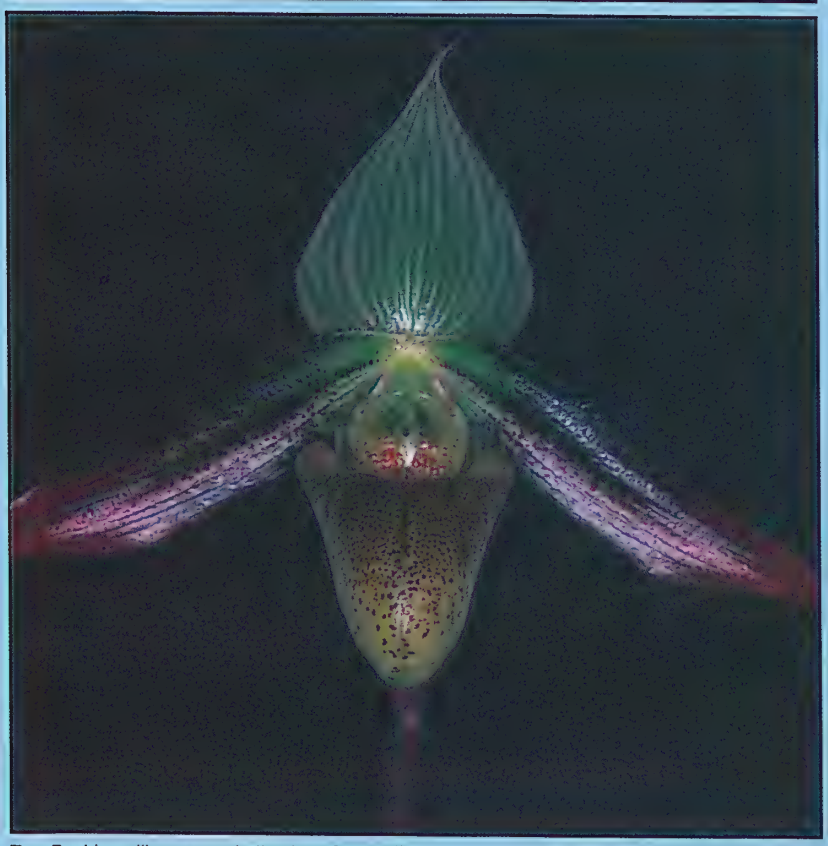
In the last article I dealt with those species which were endemic to the Chinese mainland. Possibly through seed dispersal or continent movement, some species have been distributed in China, neighbouring countries and also in other areas of South East Asia. These I have termed 'The Interlopers', and are dealt with here. These include:

1. *Paphiopedilum bellatulum* (Rchb.f.) Stein — Xishuangbanna of Yunnan. also found in Thailand and Burma.
2. *Paphiopedilum concolor* (Batem.) Stein — Guangxi area of Western Canton. Also found in Thailand, Burma, Cambodia and South Vietnam.
3. *Paphiopedilum conco-bellatulum* Hort. — Guangxi area of Western Canton.
4. *Paphiopedilum wardii* Summerhayes — Bei-jiang, Liu-jiang districts of Yunnan. Also found in the Tamai River Valley of North Burma.
5. *Paphiopedilum esquirolei* Schlechter — Kweichow area of China. Also found in Northern Thailand.
6. *Paphiopedilum villosum* (Lindl.) Stein — Xishuangbanna area of China. Also found in Assam, Northeast India, Burma and Thailand.
7. *Paphiopedilum parishii* (Rchb.f.) Stein — Xishuangbanna area of Yunnan. Also found in Northern Burma and Thailand.

Paphiopedilum bellatulum must surely be the most beautiful of all the species *Paphiopedilum*. Until recently most imports came from Thailand and surrounds, with vast numbers being collected. The many forms and varieties that once graced the early English collections must have been phenomenal. Although these may have merely been clonal variations many varieties were published. These included *Paphiopedilum bellatulum* var *album*, var *lowii*, var *luteo-purpureum*, var *majus*, var *mariae*, var *nigrum*, var *roseum*, var *biflorum*, and var *egregium*. Where oh where are they now? The species is possibly the most unforgiving of the paphopedilums culturally, suffering fatally from rots if kept too wet and overfertilized. We have been having very good success using the new product rockwool. This material holds just enough water to facilitate good

Paphiopedilum bellatulum

Paphiopedilum concolor



Top: *Paphiopedilum conco-bellatulum 'Guangxi'.*
Above: *Pahiopedilum wardii.*

growth and root formation. Keep the plants cool and relatively dry in the winter.

Many of the Brachypetalum species seem to prefer the protection of rock overhangs in their native habitats. This has two advantage in that it both protects them from the extreme rays of the midday sun and also diminishes the risk of water damaging the crowns of the plants. Most of the available moisture is through ground seepage.

Paphiopedilum concolor has a very wide range covering many parts of South East Asia. This species is far easier to grow than *P. bellatulum.* Four major varieties are acknowledged;

1. var *regnieri* — this Cambodian geographic race exhibits foliage with an uncanny similarity to *P. bellatulum,* the two being indistinguishable when not in flower.

2. var *chlorophyllum* — the leaves of this species have no anthocyanin on the undersides. The spots on the flowers are also arranged in rows rather than being randomly spaced.

3. var *hennisianum* — sometimes sold as var *giganteum,* the undersides of the leaves are heavily marked in purple. The flower is much paler than many of the other varieties.

4. var *album* — recently in China a colony of the albino form was discovered. The flower has no spotting on it whatsoever.

The Chinese form of the species seems to be localised to the Lung Rei Wilderness Park, and Southern Gwangxi Province. The leaves are much shinier and exhibit a much more intricate marbling on the foliage.

Although *Paphiopedilum conco-bellatulum* exhibits features akin to both its supposed parents *(P. concolor* and *P. bellatulum),* the more realistic viewpoint is that it is probably and intergrade between the two species. Natural hybridization is a very rare event, occurring infrequently if at all. The range of this species is incredibly extensive, in some cases being no where in the proximity of one or both of its supposed parents. Another feature of the flower is that it is quite fragrant in the heat of the day. Neither *P. bellatulum* nor *P. concolor* possess this feature. The hybrid between *P. concolor* and *P. bellattulum* was made by us several years ago with about half a dozen having flowered. In the flowerings so far witnessed none resembled the species being introduced as *P. conco-bellatulum,* rather they show a flower very similar to *P.* Wellesleyanum *(P. concolor* x *P. godefroyae).* Buddy F. Mark has published considerable information on the natural Chinese sites of this species.

Above: *Paphiopedilum esquirolei.* Above right: *Paphiopedilum villosum* var *annamense.*

The yellowish forms are as follows:

1. The form with the fully spreading and rounded shape in the petals and sepals and yellowish in colour has been named var *markeii.*

2. The form with the more triangularly shaped flowers and basically cream in colour is known from Yuk-ming.

3. Another form is very similar in appearance to *P. concolor* and orginates from the Guangxi district.

The white forms are as follows:

1. The form with the rounded flowers and white background colouring was named as *P. applephonii* by a Japanese orchid magazine in 1987.

2. The form with the triangular flowers and more parabolic in shape is known as var *'Mark'.*

3. The last type recognized is the form which again is similar in form to *P. concolor* and was named *P. applephonii* 'Guangxi'.

Originally introduced by Kingdom Ward from Burma, *Paphiopedilum wardii* was very rare in artifical culti-

Below right: *Paphiopedilum parishil* (Burmese form). Below: *Paphiopedilum dianthum.*

vation until rediscovered by Fred Thien Pe in Northern Burma. Although listed as a Chinese species it is believed that plants have been collected in Burma and shipped into China by the collectors. This rumour could have some substance as there is very little variation in both the Burmese and supposedly Chinese form. The plant should be grown fairly moist and in deep shade for best results.

Many authorities 'lump' this unique geographic form into the same species classification as *P. hirsutissimum* from India. The plants do exhibit a marked resemblance to each other but are different enough to warrant specific status. The flowers and ovary of *Paphiopedilum esquirolei* are totally glaborous and the pod maturation times are only 8 months compared with 26 months of *P. hirsutissimum.* The later also derived its name from its hirsute appearance. *P. esquirolei* needs far more warmth when being grown. The flowers are more colourful than *P. hirsutissimum.*

The varieties of *Paphiopedilum villosum* are as varied as its known habitats. Four main forms or varieties are accepted. Major differences are in the dorsal sepal;

1. var *aureum* — Dorsal is yellow with dark brown central line.
2. var *albo-marginatum* — dorsal is red with white borderline.
3. var *annamense* — The Chinese version of *P. villosum* with red dorsal and brown central portion, surrounded by a green portion, surrounded by a white portion. The staminode has a distinct central cleft in the staminode.

While on a collecting trip through Thailand, Pisit Voraurai found plants of *Paphiopedilum parishii* growing in the branches of Laurel trees (*Terminalia alata*), only 15 feet above the ground. The light intensity was said to be only 500 foot candles. Most growers cultivate this species with much too much light. Because of the leathery nature of the leaves it is immediately assumed that the plant likes a lot of light. Although said to occur in China, some authorities believe the plants to be endemic only to Thailand and Burma. First plants were discovered by Rev. C. Parish near Moulmein, Burma. These plants were found growing on the decayed fibrous roots of *Drynaria quercifolia.* Healthy plants should be dark green in colour, at times producing up to 12 flowers.

NEW SPECIES FROM CHINA — *Paphiopedilum markanum*

Recently I was fortunate enough to be sent slides of a newly discovered *Paphiopedilum* species from the border regions of China and Burma. Because the plants are usually found by the indigenous population, exact locations are at times difficult to obtain. The well known *Paphiopedilum* expert, Fred Mark, has sent the formal description of this species to Dr Fowlie of the USA, who is waiting for further specimens to flower before publishing the description. As can be seen by the photo, the plant has foliage very similar to *P. esquirolei.* I have for some time been looking for the original description of *P. chiwuanum,* a species which has not been sighted since its scanty publication in a Chinese botanical magazine. The description was evidently made from a dried specimen. Since that time the plant has masqueraded under the guise of plants of *P. spicerianum* (reddish form), and a very small form of *P. esquirolei.* It is possible that this new find may indeed be the long lost *P. chiwuanum.* China is such a vast region that many new species may still remain undiscovered. Seed pods have already been placed on this species and will soon be flasked making it available to interested growers.

Top: *Paphiopedilum markanum.* Above: *Paphiopedilum markanum* plant habit.

Wilton Paphiopedilum Research Collection
P.O. Box 19
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Australia.

To Tissue Culture or Not to Tissue Culture

Margaret Robinson, Growing Point Nursery.

The traps and pitfalls. One big word — Manipulation!

Let me paint you a scenario. A beautiful (words cannot describe it) Standard *Cymbidium* is presented to the laboratory. Straight spike, all the flowers looking at you no matter from which angle you observe, every petal and sepal in the right place and the flower count, size and substance all of top quality. All these factors have contributed to the award this plant has received. The proud owner asks you to 'meristem' it. You are of course enchanted with such beauty and agree to tissue culture it.

All goes well, enough multiplication is achieved and sold back to the owner. Three maybe four years pass and the first flowers are expected. By this time he has no doubt sold to his friends and the cut flower growers. What do we get? Crooked spike, the flowers a lot smaller than the original, they are facing all over the place and horror of horrors some are even upside down. About the only thing right about this plant is the texture, it's hard to manipulate texture. Where have we gone wrong? No doubt the spike had been under rigid training since emergence. The buds may have been painted with one of the Gibberellins inducing elongation of the cells hence larger flowers. The plant will have been turned every day, buds gently and carefully moved into the correct place and finally racemes that do not respond to treatment discarded.

None of these techniques change the genetic structure of the plant. Unless everyone knows that they have to 'manipulate' to get results equal to the parent plant, the laboratory will probably be blamed; and the concept of plant tissue culture brought into disrepute. How many times have you heard that only the first 100 to 1000 plants will grow true? Not so! If it were true, plant tissue culture would have died in its infancy. As it is, wild species of the world have been regenerated through the medium of tissue culture. Feed crops have been improved, fruit trees reproduced, virus removed from strawberry plants, salt tolerant Australian native trees and shrubs produced to help solve the man made problem of over salinity. They are producing flavours and drugs through tissue culture techniques. World wide, orchids are being cloned with great success.

Anything that grows readily and true from seed need never be cultured. Plants that grow and multiply by vegetative means are at risk. They can be eaten, trodden on, burned or proliferate so slowly that their predators destroy them faster than they can regenerate. Sound familiar?

Now let's look at the other side of the coin. A 'nice' plant is presented for culture; its great feature being that it carries let us say three spikes per bulb each spike has 12 flowers the size is right and colour, texture and substance all contribute to this well balanced pot of orchids. One failing; it won't breed so let's clone it! Obviously the owner doesn't want his plant decimated so clonal material is scarce and more

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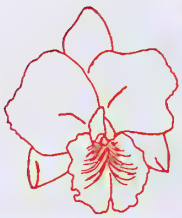

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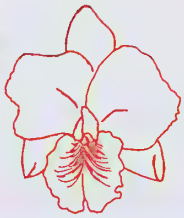

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C. gutatta 'Leopoldii' x C. Chocolate Drop 'Kodama'
C. intermedia Vinicolor x Lc Trick or Treat
C. gutatta alba x self – Species
C. intermedia 'Inorata' x self – Species semi alba
C. intermedia 'Aquinii' x self – Species
Laelia purpurata 'The Queen' x Crowthers var. – species
Laelia purpurata 'Estrelinha' x self – species
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often than not stem is left attached to the explant. Meristematic tissue is found in stem tissue near to and below a growth bud. No one can guarantee that stem tissue will proliferate true. Orchids, being mono-cots and without a cambian layer are less at risk than di-cots. In the days when we grew and cultured things like Diffenbachias, Rex begonias, African Violets we were searching for something different. A new colour combination, different variegation, new leaf shapes so we deliberately took stem tissue. Now in most cases (probably because we wanted change) we failed to generate it. However stem tissue remains a risk.

A word here about *Phalaenopsis* so called Stem propagations. We do not proliferate the stem, only the bud. Here again risks are taken if the stem tissue remains in contact with the multiplication media for too long.

Callus tissue is very fast and can produce large quantities of material which is then regenerated into organised plant form. The sheer weight of numbers produced this way means some mutations. Mutations are one of natures way of changing things. If there were no natural mutations we'd still be single cell plants and so would everything. If you are unlucky and a mutation proliferates at a greater rate than the true form, then there are problems.

What are the remedies? One obvious one is don't multiply stem tissue. The next is don't use plant hormones at such high concentrations that they produce callus. Keep your cultures green and organised. Discard any white stuff and only grow on protocorms that are green and undamaged. Can you really expect a commercial Laboratory to go to that much trouble for you? If they did — the costs would increase enormously.

When our nursery sells clones (meristems) we acknowledge that there may be a very few genetic variations. If you are unlucky enough to get one that isn't more interesting than the original, we will replace it. I use the words genetic variation deliberately, because growing practices and conditions can vary the final product quite dramatically. Flower in deep shade the colour comes out mud; flower in bright light, a beautiful red flower; in sunlight, a washed out colour can result. If the plant is struggling for light there will be a weak stem, the same plant given adequate space and light will grow much more strongly.

Because I began my plant tissue culture practice in general lines and woody species, I didn't use any vegetable matter in place of hormones. I don't use banana, coconut milk, potato or pineapple. Many orchidists do and have done so for years with excellent results. Maybe I'm lazy, I find it is so much cleaner and simpler to add or takeaway biochemicals from a media using known quantities. The other orchid habit I can't acquire is using a breather in the flask. My lids don't have holes in them and they are tightly sealed. The plantlets do not need to photosynthesise as I supply them with a carbon source usually in the form of Sucrose, ordinary granulated sugar from the supermarket.

Media. I use Murishiga, Serpa.Jones (1974) Macro and Micro elements and vitamins with the addition of Ascorbic acid. For amino acid content I use Glycine as well as L-Tyrosine. The hormones depend on whether I'm multiplying, growing or germinating. The genera dictates the various strengths, mainly in the carbon source. Things like *Phalaenopsis* and *Paphiopedilum* don't like very much sugar so they get a little extra amino acid.

The hormones Benzyl Amino Purine (BAP), Furfuryl Amino Purine (Kinetin) and N6-iso Pentenyl Amino Purine (2iP) are three well known Cytokinins — Indole Acetic Acid (IAA), Naphalene Acetic Acid (NAA) and Indole Butyric Acid (IBA) are examples of the Auxins. The Giberellins form another group and are useful in encouraging reluctant seeds to germinate. Casein Hydrolysate can be used instead of Coconut water. The strength I use is 100mg per litre.

Other than as a last resort I do not subject my explants to high concentrations of hormones for long periods of time. Once you've achieved multiplication it goes on from there with lower concentrations of hormones. I find rooting and transition to the outside world a lot easier if the plantlets are not 'stoned' with powerful growth regulators.

Cattleyas can be multiplied as plantlets with 2iP 0.1 to 0.3mg/litre plus IAA at 0.01mg/litre. then transferred to a growing media until they are big enough to deflask. My growing media for Cattleyas contains no hormones, as all I need of the plants is that they grow and produce it for themselves. Cymbidiums will multiply on just about anything and the above info will work for them. However if you want trillions use BAP at 1mg/l and IBA at 0.2mg/l and nudge them along with .01mg of Adenine. The higher ploidy cymbids tend to produce an exudate which if left un-

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attended will destroy the culture. When this happens I transfer to a media with Glycine 2mg/1 and Vit C (Ascorbic acid) 0.176mg/1. (to get these small amounts you make a stock solution and use aliquots.) plus activated charcoal to reduce this phenomenum. Even with this treatment some cultures still need several replates to get them large enough and strong enough to deflask. *Oncidium, Miltonia, Zygopetalum* and *Stanhopea* all do well with the 2iP and IAA treatment but don't leave them too long as it is sometimes hard to stop them multiplying and getting them to grow. You learn with experience to juggle your growth regulants. It isn't silly to do a small test run with various strengths and different chemicals to find an optimum one for the genera you are interested in. *Phalaenopsis* stem propagations will multiply on the 2iP media. They do not like sugar so reduce that to 5g/1 or substitute it with amino acids. Remember with *Phalaenopsis* they do not like strong media. For *Phalaenopsis* my growing media has nil cytokinins and .001mg IAA.

Orchids love growing roots in media and deflasking becomes a chore if roots are allowed to become too rampant. With many epiphytes we root them in pine bark under reduced light with intermittent mist controlled by a humidity sensor. *Phalaenopsis* and *Vanda* are the prime exceptions — they do a lot better if they start life outside the flask with a well established root system.

I have noticed that many orchid growers refer to all small plantlets as 'seedlings'. I used to find this confusing but I'm getting the hang of it. Now when asked for seedlings I ask "Seed grown or meristems?" Strictly speaking baby meristems are clones, but so what? So long as we understand each other.

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Mr. Harry Lodge — 30 Years of Service to W.A. Judging

Most Western Australian orchid growers would have heard or met Harry Lodge as indeed would many orchid growers east of W.A. Harry has just passed his third decade with the Judging Panel of the Western Australian Orchid Society (OSWA). He also ended his term as Chairman of the Panel at the end of 1987 and is presently the Panel's Registrar.

The judging of orchids in Western Australia and Harry's involvement in judging was initiated in 1957 when a panel of 3 Judges and 11 Assistant Judges was formed. It was not until 1960 when the Australian Orchid Council was formed under the capable management of Sir John Hall-Best that the OSWA Judging Panel was reformed into a workable body of 10 Judges and 9 Assistants.

The Judges were: S.P. Hall (Chairman), J. Brasinton (Assist. Chairman), George Marshall, Harold Hill, Harry Lodge, A.C. Dawson, K. Birk, Dr. E.L. Griffiths, E. Young and M. Mercer. The assistant judges were: V. Bath, Cec Taylor, Lloyd Thomas, A. Farrant, Jack Hayes, F. Hedges, J. Cox, C. Connor and Roy Brown (OSWA's new Chairman).

Many highlights peppered Harry's judging career, the first of these was the winning of the Gold Medallion for W.A. for their State display at the World Orchid Conference in Sydney in 1969. The win was a great thrill for the members led by the late Herb Foote who put the whole display together. The 5th Australian Orchid Conference held in the Sheraton Hotel, Perth in 1977 and the 1st Regional Orchid Conference held in Bunbury, W.A. in 1979 were also both successful for W.A. judges. The most recent win of another medallion for W.A. at the 1986 Orchid Conference in South Australia.

I guess for many orchid growers the receiving of an Award Merit for an orchid would be the highlight of a lifetime. Harry received an Award Merit only recently for *Paphiopedilum malipoense* 'Josephine'. But Harry's ultimate career highlight was an HCC given by both OSWA and the AOC for a seedling he had produced when he started flasking in 1962 called *Paphiopedilum* Welsh Rose 'Josephine'. Harry had produced a flask of 12 seedlings and 2 received awards.

Harry's interest in orchids started 42 years ago, the same year the Orchid Society of Western Australia (OSWA) was formed. Orchids have always occupied his time and interest as a young boy. Harry collected and pressed numerous indigenous terrestrial orchid flowers but despite constant attempts, the cultivation of these orchids eluded him because his lack of knowledge and guidance. During the second world war he gained a wealth of knowledge of epiphytic orchids from a orchid enthusiast from New South Wales while he was stationed on the

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Atherton Tablelands in Queensland. They collected many orchids and used to tie them onto the side of their tent. Similarly, when he was shipped to New Guinea he made further collections.

After the war, back in Perth, he answered an advertisement in a daily paper requesting that any person interested in orchid growing should meet at the Prunella Tea Rooms, Brennan's Arcade. It was the 19th December 1946 and the catalyst that gave Harry those 42 very successful and rewarding years of growing orchids — I wish him many more.

He is a life member of OSWA and has held the positions on the Board of Referees (AOC), OSWA delegate to AOC, Vice President of OSWA, Chairman and Registrar of the OSWA Judging Panel and a Judge (from 1957). A member of most other W.A. orchid societies and cultural notes writer for the bulletins of OSWA, Northern Districts Orchid Society (W.A.) and Sydney Orchid Society where he is an honorary member. He is also the patron of W.A.'s newest society, the South Eastern Orchid Society and is the Managing Director of West Coast Orchids Pty Ltd.

Incidently, the cultivars of 'Josephine' are named after Harry's wife, Jo. Harry's favourite *Paphiopedilum* is another chinese species — *Paphiopedilum micranthum*. He finds the most difficult species to grow is *Paphiopedilum fairrieanum*.

Rob Manning

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Paphiopedilum micranthum 'JEANNIE' AM/Q.O.S. — A.O.C. owned by Florafest Orchids.

Our first encounter with the beautiful Chinese Paphiopedilums was on a visit to nurseries throughout California in 1986.

At the Santa Barbara Orchid Show we saw three superb flowers of *Paphiopedilum micranthum* and at least ten plants of *Paphiopedilum armeniacum.* We purchased several plants of *Paphiopedilum armeniacum* in bloom to ship home. Later in the week we visited with John and Tommie Hanes and were privileged to view their superb *Paphiopedilum* collection. They had a few of the three new Chinese *Paphiopedilum armeniacum, micranthum* and *malipoense* and they looked such super plants we could not leave without some, so we purchased some sixty plants and forwarded these home.

Several of these flowered and were all of excellent quality, and one, *Paphiopedilum micranthum* 'Jeannie' received an award of merit from the Queensland Orchid Society and was later ratified by the Australian Orchid Council. One Sunday morning we received a phone call from Adelaide, a call that most of us only dream of. 'Congratulations, your *Paphiopedilum micranthum* 'Jeannie' AM/AOC-QOS has won Orchid of the Year'. Isn't it great that a pure species has won this great honour.

Our culture of *Paphiopedilum micranthum* 'Jeannie' AM/AOC-QOS at Florafest Orchids is as follows.

After surviving that dreadful gassing treatment our valuable plants are subjected to on arrival in Australia and the following three months quarantine being carefully looked after in a friend's Quarantine house, *Paphiopedilum micranthum* 'Jeannie' AM/AOC-QOS arrived in beautiful Toowoomba to begin a new life. Toowoomba is situated on the Great Dividing Range some 120km west of Brisbane and has hot summer days followed by cool nights. Winter can be severely cold, however we do get mostly bright sunny winter days.

Our Chinese Paphiopedilums are grown in a warm house, heated with fan forced hot air which is heated with gas. The winter temperature does not fall below 50 degrees F.

Light. The roof of the house is fibreglass and iron alternating from east to west. The fibreglass is reasonably old and therefore the penetrating light is not bright.

Compost. We pot our Chinese Paphiopedilums in plastic pots with a mixture of medium "Aussie" bark and *Sphagnum.*

Water. We try to use only rain water and the plants are always kept moist. They are watered heavily once a week as a leaching to remove stale air and excess fertilizer. In really hot weather they are misted four to six times a day.

Fertilizer. We use only grow force flowfeed GF9 at half strength. Plants receive this three times a week in summer and once a week in colder weather. GF9 is a low nitrogen fertilizer.

Pests. In an enclosed house like ours, it is easy to keep pests at bay, and Paphiopedilums don't attract many anyway.

Disease. In most cases this is caused by improper conditions in your orchid house. All plants require good air movement and a buoyant atmosphere, correct light to fertilizer ratio and good, well draining compost. The Chinese Paphiopedilums will not tolerate stale compost.

Flowering. When buds appear it is important not to allow water to remain on the flower buds for any length of time. Water only on bright sunny days and at a time so they will not remain damp overnight.

Our thanks go to John and Tommie Hanes for selling us this beautiful plant, the Australian Orchid Council for making this award available to the orchid growers of Australia and to all those Judges who voted it as 'Australian Orchid of the Year'.

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Toowoomba Orchid Conference

By Brian Steven

Toowoomba people were told before our Conference that in a national survey "Toowoomba is the best place to live in Australia," and that statement was driven home when thousands of visitors flocked to the Toowoomba Orchid Society's Orchid Spectacular and Conference held in the Harristown High School Hall in September.

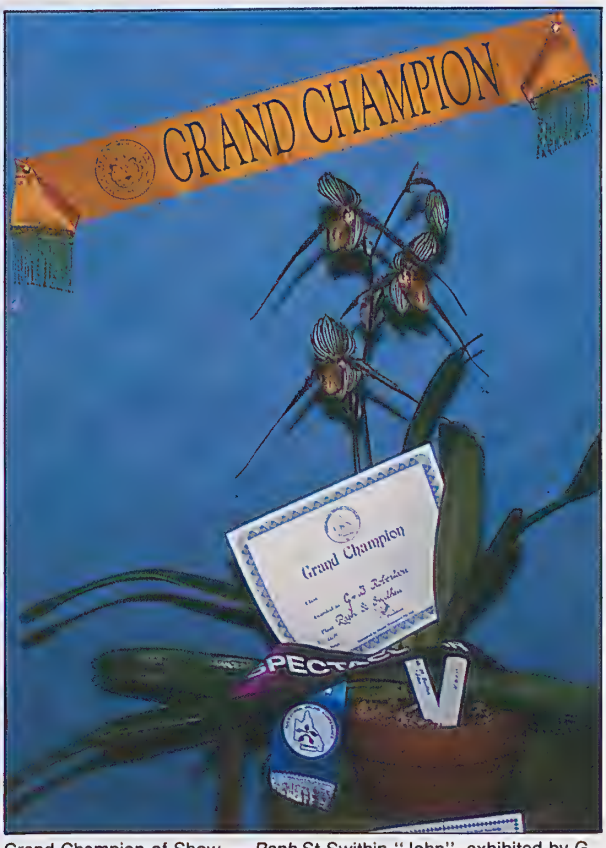
Despite the airline strike preventing some registrants from attending, including one speaker Andy Easton from New Zealand, the Spectacular was a resounding success, proving that a single club with only about 100 members can organise a major conference successfully.

Not only did the society hold the Spectacular for five days leading up to Toowoomba's annual Carnival of Flowers, but members had to dismantle the complete show in the hall, plus a huge 70′ x 40′ marquee containing all the commercial exhibits on the last day and set up a completely new orchid show which opened on the Monday at 10 a.m. for the rest of Carnival Week. This surely must be a world first! Two orchid shows in a fortnight!

Contributing to the success of the show and huge attendance was the glorious spring weather that was so well-behaved all week.

The hall was ablaze with society displays including the Toowoomba Orchid Society display on the centre stage area.

Champion of Miscellaneous Section *Lyc.* Brooklyn exhibited by D. and L. Paroz.



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In the past, we have rarely had any spare flasks of white or pink cymbidiums to offer so the only sure way of getting them is to order early. If you write for a catalogue, now, you might be one of the lucky ones.

For a copy of our catalogues, etc. please contact us DIRECT, and mention which orchid genera are required, whether plants and/or flasks are required, and which flask size(s) are preferred.

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This display consisted mainly of *Cymbidium* orchids and a small exotic section.

One of the highlights of the show was the display by the Native Orchid Society of Toowoomba, brimming full of flowering native orchids at their best, including many large specimens of *Dendrobium speciosum*. A popular feature of this display was the recorded Australian bird calls music in the background.

In the words of Ed Thorogood, Editor of the Native Orchid Bulletin, published by the Native Orchid Society of Queensland, he states, in part "... It was beyond any shade of argument, the best native orchid display that it has ever been my good fortune to cast my eyes upon."

Toowoomba visitors really appreciated the exotic orchids from the coast and north Queensland areas of the State. Top quality orchids such as *Phalaenopsis, Vanda* and *Cattleya* really opened their eyes.

The conference banquet and the cocktail party were a social highlight as was the Aussie barbecue at the Cabarlah Hotel, a country "pub" about 15 km from Toowoomba.

The Grand Champion orchid of the show was awarded to *Paph.* St Swithin 'John', tabled by Beryl Robertson from Nambour.

The much-travelled Tom and Edith Price from Sydney were again among the winners with Reserve Champion *Blc.* Dundas 'Olga'. They also picked up Champion Cymbidium with their popular white *C.* Lake Macquarie 'Winsome'.

Not to be left out, Toowoomba champion native growers Clarrie and Beryl Wuth took out Champion Specimen with a magnificently flowered *D. speciosum* var *curvicaule.*

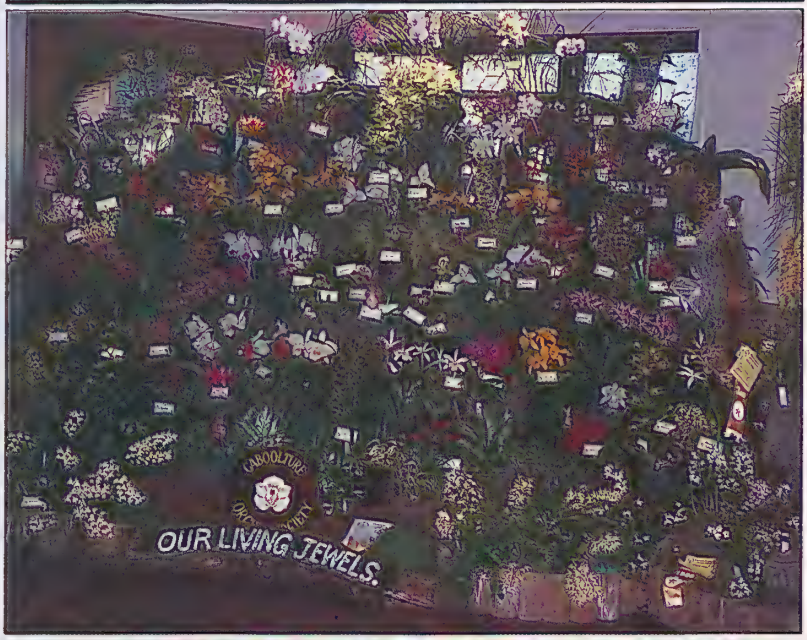
Mackinneys Nursery from Brisbane tabled the Champion Species with a well-grown *Paph. sukhakulii.*

The society displays were divided into different categories. Winners were: Pine Rivers Orchid Society, Tweed District Orchid Society and Ipswich Orchid Society.

The commercial growers display was won by a joint display by G. & B. Robertson and Humpybong Nursery.

The champion of the floral art section was displayed by Toowoomba Orchid Society member Norma Grundon.

The 1989 Toowoomba Orchid Spectacular and Conference will certainly live in our memories for a long time, and to any society out there who is contemplating holding a conference — Go for it!



Top: The display by the Native Orchid Society of Toowoomba, which received a second in the large displays. Centre: The Caboolture Orchid Society which received a third in their section. Above: Part of Banana Coast Orchids display in the Commercial Exhibits.

NSW Regional Orchid Conference

— Wagga Wagga

The conference was held over the eight hour long week-end at Sturt Public School assembly hall.

Friday afternoon saw the setup of the Conference Orchid Show, society displays being put up by Griffith Orchid Society, Albury-Wodonga Orchid Society, Canberra Orchid Society and Wagga Wagga Orchid Society.

Commercial displays were erected by Banana Coast Orchids, Coffs Harbour, N.S.W., featuring mainly soft cane dendrobiums. Arbor Orchids Vic., had mixed genera but mainly cymbidiums. Lazy Possum Orchids, Victoria, display consisted of mixed genera plus cymbidiums. Wal Rhodes took plants in flower in the Odontoglossum Alliance and Paphiopedilums to make up a display.

A.D. Spring helped with a glasshouse display.

By early Saturday morning displays and benched plants were ready for judging.

Results of the judging saw *Blc* Dundas 'Olga' belonging to Tom and Edith Price as Grand Champion. Reserve Champion *Paph* Gael 'Camira' W. Rhodes. Champion *Cattleya Blc* Dundas 'Olga' T & E Price. Champion *Cymbidium* C. Highland Mist 'Jane' Bill Raphael. Champion Vandaceous *Phalaenopsis* Winter Snow 'Alpine' T & E Price. Champion Dendrobium *Den.* Yondi 'Kayina' Ted Gogerly. Champion Aust Native *Pterostylis curta* M North. Champion Oncidium Alliance *Odm* Jerispol x Elae T & E Price. Champion Exotic Species *Coelogyne cristata.* Champion Orchid not otherwise specified *Pleione* Versailles 'Buckleberry' M North. Champion Display Canberra Orchid Society. Champion Table Top Display T & E Price. Champion Open Floral Art T. J. Crowley. Champion Novice Floral Art Annette Johnson.

Award judging took place after the show judging. Awards were granted to *Paph* Gael 'Camira' an A.M. belonging to Wal Rhodes and a HCC was granted to *Pterostylis curta* owned by Mike North.

Top: Blc Dundas 'Olga' Grand Champion
Above: *Paph* Gael 'Camira' Reserve Champion.

Den Yondi 'Kayina'.

Pterostylis curta 'conference' HCC/NSW.

After a splendid lunch registrants attended lectures which finished early so that time was available to return to hotels, motels to get ready for an excellent banquet at which the after dinner speaker David Banks talked on the humourous side of his orchid growing life.

On Sunday morning lectures continued after which in the early afternoon there was an organised tour of Wagga Wagga, Charles Sturt University; then on to a winery for wine tasting and a barbeque.

Later in the afternoon a 100km trip took registrants out to look at many different terrestrial orchids in their natural habitat.

On Monday morning a trip around the Botanic Gardens on a miniature train was much appreciated.

After the drawing of the raffle, won by Irene Bodell, the Conference was closed by Graeme Banks, President O.S.N.S.W. This early close gave those who travelled long distances time to go home.

Congratulations go to Wagga Wagga Orchid Society for a well organised and enjoyable Conference.

A. Registrant.

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The R.A.S. Orchid Registration Advisory Committee

Newsletter No. 1

This Newsletter is intended to be the first of an occasional series drawing attention to matters concerned with the registration of orchid grex names. It will provide the opportunity for changes in policy and procedures to be made known to all orchid growers and should help to prevent the confusion and misunderstanding that has arisen in recent years. Copies will be circulated to all the major orchid societies who will be free to extract information from it to pass on to their members.

1. **Nature and relationships of The Orchid Registration Advisory Committee (ORAC)**

   ORAC is an advisory committee of The Royal Horticultural Society (RHS), first established in 1961 when the Society took over as the International Registration Authority for Orchid Hybrids (IRAOH) from David Sanders Orchids Limited. International Registration Authorities are appointed by the International Society for Horticultural Science (ISHS) through their Commission for Nomenclature and Registration. The ISHS, the body responsible for convening International Horticultural Congresses, operates under the auspices of the International Union of Biological Sciences (IUBS).

   ORAC currently consists of 8 members, all of whom are active in the orchid world; they are: Dr A.A.O. Morrison (Chairman), R. Bilton, A. Bristow, Dr. P. Cribb, J. Greatwood, P.F. Hunt, J.R. Oddy and D. Stead. The secretary to the Committee (Dr. A.C. Leslie) is the Society's registration officer and a member of the Commission. Membership of ORAC is in the process of being expended to include overseas members. Meetings are held 2-3 times a year, in London, to discuss any matters relevant to the registration of orchid grex names. All decisions and recommendations made by ORAC need to be approved by the RHS Council.

   The World Orchid Conferences (WOCs) were established as non-governmental gatherings of orchid growers, breeders and scientists in 1954. The second WOC established what is now known as the International Orchid Commission (IOC) which through its Handbook Committee and with financial support from the American Orchid Society and the RHS, publishes the Handbook on Orchid Nomenclature and Registration. The members of the Handbook Committee are all members of ORAC and the Handbook is recognised as the Orchid Code, complementing the International Code of Nomenclature of Cultivated Plants ('the Cultivated Code') and the International Code of Botanical Nomenclature (the 'Botanical Code').

2. **Computerisation of the International Orchid Register**

   This ambitious project is nearing completion and it is much regretted that this facility has had so long a period of gestation. The RHS has been engaged for nearly three years now in the monumental task of building up "orchid data" in their computer system. This task involves far more than simply entering huge amounts of data about orchid grexes, including their parentage and synonymy. There are also data relating to orchid species and natural hybrids relevant to orchid registration, cross references to Sanders List of Orchid Hybrids (SLOH) and its Addenda, information regarding registrants and originators, and wide ranging supporting data to help the Orchid Registrar check new applications. And data entry is only one part of the process. Each entry has had to be checked not once but several times in order to ensure consistency as the whole vast assemblage of information has been up-dated to today's state of knowledge. Although the most modern Optical Character Reading (OCR) techniques have been employed in gathering the data, the inconsistancies and errors deriving especially from the original volume of Sanders, have caused particular problems and delays. It is unlikely that such a high degree of data integrity exists anywhere else in the taxonomic world.

   It is now at the stage where information about 74,800 grexes and nearly 2,000 species and natural hybrids (together with 729 genera) have all been entered. So too have data relating to 6,800 registrants and originators. A small amount of residual tidying of the data, together with entries post-June, 1989, is now being carried out, on-line. During this period, the computerised system will taper in shadowing the Registrar's on-going manual registration. Early in 1990 the roles will reverse and manual processing will taper out to serve as a back up for computerised registration once the final changeover is made.

   All this activity, of course, goes far beyond support for on-line registration of orchid grexes (although this is its main purpose). This integrated pool of orchid data also provides the basis for a wide and flexible report generating capability — reports that range from the vital routine of 'Orchid Review' updates, through the familiar SLOH format, to the exciting possibilities of exploring the ancestry or the progeny of every orchid grex.

   Building this comprehensive system has inevitably taken time — a quick and simple solution providing a constrained and rapidly outdated system was not the aim. Those involved in the data entry and checking processes have all been involved in other full-time jobs and this special project has had to be fitted into already crowded work programmes. So, what are the key dates for completing the task? Data load, up to a 1 June 1989 dateline, will be complete by the time you read these notes. The final on-line revisions will be finished by end-January 1990, technical problems notwithstanding. The taper-in period (manual registration shadowed by the computer) could be succeeded by the taper-out period (computerised registration backed up by manual checking) during February, 1990 leading to the full scale introduction of the new system on 1 March, 1990. During these early days the range of reports available will be limited not by the system but by other demands

on the Society's computer resources. Further announcements will be made regarding their expanding availability.

3. **Change in Registrar**

From 1 January 1990, there will be a change of International Orchid Registrar. Jack Greatwood, who has been Registrar since February 1972 (latterly assisted by his wife Hilary) is to retire and his place will be taken by Peter Hunt, who will be assisted by his wife Doreen. Peter Hunt formerly worked with orchids in the Herbarium, Royal Botanic Gardens, Kew and he and his wife occasionally assisted with registration before 1972. They will be working from home in Somerset, but will have a direct computer link to the orchid database in London. The postal address for all orchid registration applications will remain the RHS, 80 Vincent Square, London SW1P 2PE, England.

4. **Changes in the registration fee**

As most orchid growers will now be aware there have been changes in the level and nature of the fee required for registering a new orchid grex. As from 1 April 1989 this became an application fee, to be paid when the application is submitted. This ends the unfair situation in which successful applicants subsidise unsuccessful ones, despite the fact that unsuccessful applications usually involve at least as much work, and very often more. It also has the administrative advantage that detailed individual accounts need no longer be kept for every registrant, thus relieving the Registrar of a chore that contributes to delays in the registration process. In order to facilitate payment applicants may now, if they wish, merely cite a credit card number. The application fee is non-refundable, with the exception of those cases where an application is rejected due to the cross or the name having recently been registered by another applicant within a period of seven months from the date upon which the applicant signed the form and the acceptance of the earlier application.

The increase in the fee is more than justified on the basis of the costs incurred by the Society. Total operating costs (post computerisation) are estimated at £37,200/year and assuming new registrations continue to run at the rate of 2,300/year, this still leaves the Society with a shortfall of c. £5,000 even at the new fee rate of £15. However, the Society is aware of the concern over the level of the fee and is particularly concerned to maintain the integrity of the International Registrar, which has to be as complete and up-to-date as possible. For this reason, the fee structure and the way in which registration as a whole is financed, is under fundamental review.

The Society much regrets that the causes for this change in the fee had not been explained previously and that the greatly improved information service that the computerisation project should bring with it have not been available before now. It should be remembered however that the International Register must and will remain the only authoritative and fully up-to-date source of data about orchid hybrids.

5. **Future services**

In 1990 the Society will be able to offer an extensive range of search and reporting facilities to orchid growers based on the computerised Register. Details of these and their costs will be provided in a future Newsletter. It is also hoped to be able to report on the possibility of registrants who regularly submit large numbers of applications being able to provide a lump sum in advance against which registrations would be charged.

Orchid Registration Advisory Committee
December 1989

VALE

MARJ PURNELL

Mrs Marjorie (Marj) Purnell died at her home in Mackay, North Queensland, on the 6th December 1989 after a long illness. She will be sadly missed by her family and by her many friends in the Orchid world.

Marj was born on her parents' cane farm at Mt. Jukes, 25 miles north of Mackay, successfully completed general nursing training at Mackay District Hospital before marrying an Australian soldier she had nursed after he contracted malaria in New Guinea during the war.

Marj's husband joined the Department of Civil Aviation and was transferred to New Guinea to do 3 years Tropical Service. They stayed for 25 years. Marj nursed at the Anzac Hospital, Lae, where she met Min Korsman. She met Dr Andree Millar at the Lae Botanic Gardens, and the three formed a lifelong friendship through their love of the New Guinea antelope orchids.

With Min and Andree, Marj went on many collecting trips in the highlands of New Guinea. Marj was President of the New Guinea Horticultural Society for many years.

On returning to Australia Marj 'retired' to Buderim but found the winters too cold so returned to Mackay where she decided to breed the antelope orchids. She joined the Mackay District Orchid Society in November 1973, and held the position of President for 9 years during which time she also was President of the Tropical Queensland Orchid Council. Marj was a life member of the Mackay Society and at the time of her death she was also Patron.

Marj was always in demand as an entertaining guest speaker, and she contributed a weekly horticultural article to the local Daily Mercury under the pen name "Ceratobe".

Marj made three trips back to New Guinea to collect selected species which formed the basis of a breeding programme to produce super clones, especially *Dendrobium lasianthera* from the Sepik River area. The evidence of Marjs' breeding successes can be seen in orchid houses all over Australia.

The Orchid world has lost a valuable source of knowledge but she leaves a legacy through her breeding lines of the antelope Dendrobiums.

South Australian State Orchid Conference
— June 1990

June 9th to 11th, 1990, will for most states be the Queen's Birthday Holiday weekend, and the Mount Gambier & District Orchid Society Inc is planning to make it an unforgettable weekend for Australian Orchid Lovers.

After some 10 years of experience in running very successful weekend seminars, we have undertaken the planning and running of the inaugural S.A. State Orchid Conference in Mount Gambier, South Australia.

Mount Gambier, built on the slopes of an extinct volcano, is known as the Blue Lake City. The Blue Lake is famous for its change of colour from Winter grey to intense blue in November each year. It remains blue until late March, and is the City's source of domestic water. Mount Gambier is an exciting and progressive City with an urban population of 23,000 and an immediate area population approaching 45,000. The City, situated as it is almost on the border between South Australia and Victoria serves as the hub of the Green Triangle Area which encompasses the South-east of S.A., and Western Victoria. The Area has a rich and varied agriculture and horticulture industry, a multi million dollar timber industry, and abounds with many natural and man made attractions to interest the visitor.

The venue for the Conference will be the South East College of TAFE complex in the centre of Mount Gambier. The Complex provides a 240 seat theatre for the Conference lectures, and adjacent areas for an exhibition of Orchids, and a Commercial Sales area. All registrants are invited to exhibit flowering orchids, and provision has been made for award judging to take place.

Official activities will commence at 12 noon with a luncheon which is included in the registration. Registration and Exhibition set-up will precede this commencing at 10.00a.m. on the Saturday morning. The afternoon will see the presentation of 4 lecture sessions, with 5 more sessions to follow on the Sunday, culminating in an Open Forum where subjects can be further explored, or new subjects opened up. On the Saturday evening there will be a Conference dinner, at which we will have a keynote speaker. While Sunday will see the conclusion of the major conference activities, there will be several activities to occupy registrants who can stay over for an extra day or two. A visit to a major Pine bark supplier proved very interesting for many recent Seminar attendees.

Registration forms will be available from February 1990, and persons wishing to take up trade space are advised that applications are already available. Enquiries for registration and all conference matters should be addressed to Conference Director, S.A. State Orchid Conference, P.O. Box 2455, Mount Gambier, S.A. 5290.

A wide ranging program of speakers is being arranged, and a very wide range of genera will be covered. Whilst the final list of Speakers is not yet completed, we expect to cover Standard and Miniature/Intermediate Cymbidiums, Cattleyas, Phalaenopsis, Odontoglossums, Paphiopedilums, Australian native Terrestrials and Epiphytes etc.

We expect to limit registrations to 200, and the Dinner venue can cater for only 120. As you can see, it will pay to register early. Registrations have been set at $30 single and $50 double. Accommodation has been block booked at 2 large Motels and can be guaranteed until May 1st, details with registration. We look forward to seeing YOU on the weekend of June 9th to 11th, 1990.

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- LC. Little Bow x LC. Little Misty
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Orchid of Most Botannical Interest Orchid Expo 1988

Bonatea cassidea is a terrestrial orchid from South Africa and in his book, Encyclopedia of Cultivated Orchids, Alex D. Hawkes describes it thus.

***Bonatea* willd**

About twenty species of terrestrial orchids of the complex subtribe *Habenarinae* make up this interesting genus. Its members occur from Arabia southward through East Africa to South Africa's Cape Province. Tuber bearing plants with leafy stems and erect racemes of often large and showy, usually white or greenish, long spurred flowers. They are very rare in our collections at this time, albeit most desirable orchids. No hybrids have been made utilizing the bonateas, and nothing is known of their genetic affinities.

Culture: as for the Tropical *Habenarias.* (I,H).

I received my plant of *Bonatea cassidea* from Jim and Barbara McQueen in Tasmania in exchange for another African terrestrial, *Stenoglottis longifolia.* The plant was potted into *Sphagnum* and grew very slowly at first. On the arrival of a new growth I decided to try a different compost. The new mix consisted of equal parts of fine 'Aussie' bark, Perlite and shredded *Sphagnum.* The *Bonatea* relished in this mix and the new growth passed the old 4 inch growth and continued to grow to approximately 12 inches. It then sent a flower spike from the top of the growth. This was at the onset of winter and the first two buds damped off. The spike sat still for the rest of winter and in spring the spike began to grow and 5 more buds appeared. These buds opened to reveal the weirdest orchid flowers I had ever seen. There appeared to be far too many segments made up of thin tails.

After the Orchid Expo, I tried to pollinate this most unusual plant. It seemed simple. There were long pollen sacs as in the genus *Disa,* and on each side of the flower what appeared to be little round, clear stigmatic areas. The result no seed capsules, Oh well, the flowers must have been too old. The plant grew rapidly and this year sent up two flower spikes. Not going to let it get too old before pollinating, I decided to take a few slides and then pollinate. On went the close-up lens and let's focus on these strange tails. Hello what's this, those two tails have very shiny areas at the tips. A few more slides and out with the tooth pick, yes the pollen does stick to this shiny area, but heavens it's at least one inch from the centre of the flower. Another bloom was pollinated on the clear shiny stigmatic looking areas at each side of the flower. The results, those pollinated on the tails formed strong seed capsules, the others none.

Speaking to Mr. Harold Koopawitz at the University of California 'Irvine' he has grown and flowered several species of *Bonatea* and had made a few hybrids between the Disas and Bonateas. I wonder what the results have been. It could make a good follow-up article.

Culture of *Bonatea cassidea* and *Bonatea antennifea* at Florafest Orchids is as follows:

The plant consists of large tubers some one inch in diameter and up to twelve inches long. As the new growth appears in spring the old growth dies. The foliage consists of a long stem with the leaves appearing as bracts at intervals of about two inches. The flower spike is a continuation of the stem with similar but smaller bracts.

Our plants are grown in a warm house with a minimum of 50°F and a maximum of 90°F. It has alternating sheets of fibreglass and iron on the roof and runs east to west. The fibreglass is aged so the light is not bright.

Compost consists of equal parts of seedling 'Aussie' bark, Perlite and shredded *Sphagnum.* This is composted for a few weeks by mixing in a tumbler and adding blood and bone, dolomite and trace elements. It is throughly wet and stored in a wooden crate.

The plants are watered heavily once a week in summer, to leach out stale air and any excess salts, and misted several times a day. During winter they are rested and only misted occasionally.

All our plants are fertilized with grow force GF9, a low Nitrogen fertilizer. At half strength three times a week in the growing season.

May you all enjoy your Orchid growing as we at Florafest do.

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Dendrobium kingianum 'Boundary King'

Each year a person visits various orchid collections, sees, and admires many beautiful orchids in flower.

One particular plant has been admired by many varied growers as exceptionally good. This last two years the praise and admiration for this plant has grown enormously. Requests and offers for a piece of this clone has advanced to offers of three figures have been received.

The *D. kingianum* in question is owned and grown for many years by Mr Pat King, at Coffs Harbour. It has been broken up and a number of pieces have been passed to prominent growers. I have had a plant for a couple of years and many growers have come to see it.

A program has been set in motion to meri-stem it. It is a little early to tell whether it will be successful. To-date in my laboratory all seems to be going well.

Jack Miers

Q.O.S. Spring Show

The Queensland Orchid Society's Annual Spring Show was held in the Convention Room at the Botanic Gardens Mt Cootha 15th, 16th, 17th, September 1989.

The number of plants tabled was slightly down on previous shows, but the quality was of a very high standard. As a matter of fact, in recent years, at Q.O.S. shows, quality improves with each show. Could it be that the real orchid 'buffs' keep their best for Q.O.S.

Most Orchid Societies, in or close to Brisbane, stage an orchid show in the Spring, and exhibitors who 'make the shows' must find it very difficult to patronise all the shows. This could have contributed to the number of plants tabled at Q.O.S. being down.

Ted Gregory, formerly of Taree, but now enjoying the better life and cleaner air at Tamborine Mountain, emerged as 'TOP GUN' of the show. Besides winning or being placed in many of the classes Ted showed his skill in winning Champion Specimen — Champion Native — Champion *Dendrobium* — and Most Pre-Eminent Entry all with one super *D. kingianum* 'Roy'. Ted's plant carried more than 50 spikes each bearing many off-white pinkish edged, well shaped blooms.

The Grand Champion Orchid of the show was awarded to *Cattleya* Picasso 'Hausermans', exhibited by J. and L. Heath. Unfortunately when I saw this plant the bloom was showing signs of 'going-off' — but it must have displayed itself to perfection on judging night — two days before. The pure white bloom was about 5½" (140mm) across. This plant was also awarded Champion *Cattleya.* A very fine form of *Paphiopedilum malipoense,* tabled by A. and J. Ryan was awarded Reserve Champion of the show. This comparitively recent discovery always creates much interest, when displayed, and we eagerly await the primary and complex hybrids that it will produce. The general colour of the 3½" (90mm) flower was a mix of green and burgundy while the 2" (50mm) lip was green, peppered burgundy, the elegant bloom was borne on a 60cm spike. *P. malipoense* was also awarded Champion Species of the show.

Cym Pearl Balkis 'Cooksbridge', tabled by J. and L. Heath was awarded Champion *Cymbidium* of the show. The Heath's certainly showed their versatility (Cymbidiums can be a little difficult in and around Brisbane) in growing and flowering this fine off-white well shaped *Cymbidium.*

I noticed several fine forms of soft-cane *Dendrobium* (*D.* Swan Lake 'Purity' and *D.* Swan Lake 'Southern Cross') to mention just two of the fine forms on display. The latter was very much like D. Yukidaruma 'King' in colour and shape and the flowers extended from the compost to the top of the cane.

Many fine plants were on display — *Vanda* Kasems Delight; *Blc* Malworth 'Orchidglade', *Blc* Alma Kea 'Timpalee' and a superb *Phalaenopsis* Regal Dancer met with much admiration.

F. M. Oelkers

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Cymbidium Club of Australia Annual Seedling Competition

The 1989 entries of fifty-eight (58) Cymbidiums were a record number of plants for our Club.

The month of July attracted eighteen (18) entries of top class seedlings. Long time growers, novice and new members all compete throughout the year. The competition is conducted for 'early flowers' from March to July and 'late flowers' from August to October. At each monthly meeting a standard, miniature and intermediate plant is judged. The slides are shown at the end of the year and the judges from the Orchid Society of N.S.W. select the winners from the 'early's' and then the winners of the 'late flowers'. After viewing all the flowers, they then select the overall winning Seedling of the Year (this is the Judge's choice). At our November meeting, the members select from the slides their choice of the Best Orchid of the Year (this is the Member's choice).

Winning the competition for 1989 was an intermediate flower owned by A. & V. Brown. The cross was –

Cym **AMESBURY 'CAMDEN'**
X
SOUTHBOROUGH 'GREENOAKS'

hybridised by Bob Battye. A green orchid of eleven (11) flowers, white lip with red dots.

Overall Width	= 65mm
Sepal	= 24mm
Labellum	= 25mm
Width of Petal	= 20mm

For the Member's choice –

Cym **LALOR'S LUCK 'STEVEN'**

owned by Ted Lalor was selected. This was a green standard of two (2) spikes carrying ten (10) and nine (9) flowers. Hybridised by Harry Podobransky. A white lip with a burgundy band.

Overall Width	= 92mm
Sepal	= 45mm
Labellum	= 50mm
Width of Petal	= 40mm

This seedling won the Best Green Standard at the Bankstown Orchid Society Winter Show and went on to win Grand Champion Orchid at the Lidcombe Hospital Winter Show for 1989. The majority of Cymbidium seedlings in the Sydney metropolitan area usually make their first appearance at the Cymbidium Club of Australia's monthly meetings.

Ted Lalor,
Vice President

Amesbury 'Camden' x Southborough 'Greenoaks'.

LETTERS

Dear Sir,

The Litchfield Orchid Club wishes to advise the Australian Orchid Review of an exciting event to be held in Darwin.

This very young club (only two years old) has decided to host the first ever N.T. ORCHID SPECTACULAR. Our plan is to hold the Spectacular in conjunction with the 1990 Darwin Bougainvillea Festival (an annual, two week, multi cultural, tourist oriented event). We are delighted that the Bouganvillea Festival Committee is going to list our Spectacular as a Major Event in their programme.

The N.T. Orchid Spectacular will be held in the Darwin Convention Centre, The Esplanade, Darwin, on Saturday and Sunday 2nd and 3rd June 1990. We intend 30 classes of competition (including 5 of floral art) with prize monies for each class of $15, $10 and $5. Champion and Reserve Champion $500 and $100 respectively. It is hoped that all prizes will be sponsored. A minimal entry fee of $1 per entry will be charged.

We would be pleased if your magazine could make mention of our coming event. Further details will be furnished for later inclusion as the Spectacular draws nearer.

Yours sincerely,
Beverley Lydiate,
Asst. Secretary,
Litchfield Orchid Club,
P.O. Box 59,
Palmerston, N.T. 0831.

SHOWDATES

NSW & ACT

Orchid Society of NSW
AUTUMN: Held in conjunction with the Sydney Royal Easter Show.
6th-17th April.

City of Lismore Orchid Society
AUTUMN: 20th-22nd April.
Fountain Room, Lismore City Hall, Bruxner Highway, Lismore.

QUEENSLAND

Redlands Orchid Society
AUTUMN: 29th-31st March.
Redlands Shire Council Chambers, Bloomfield Street, Cleveland.
SPRING: 7th & 8th September.
C.W.A. Hall, Shore Street, Cleveland.

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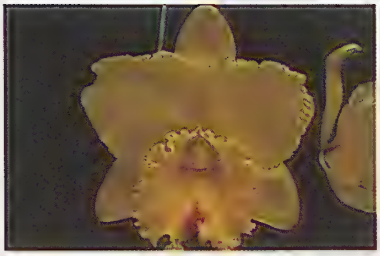

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Australian Orchid Review

Volume 55 – No. 2 APRIL, 1990

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YORK MEREDITH

decided not to divide and repot these slippers this year. So he's selling them as multi-growth plants for only $25.

MULTI-GROWTH SLIPPERS $25

York's orchid plants are always generous-sized and strong-growing but these slippers are whoppers; most of them four or five growths! 5 Paph. species in super condition.

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Paph. hirsutissimum: Handsome, cool-growing slipper from India. Green/purple flowers over 4" across on 12" black-haired stalks. Mauve-flushed petals are long and wavy.....$25

Paph. venustum: Colourful, hardy Indian species that will grow well outdoors. Pale yellow-orange lip is tinged with pink and veined with green. Winter flowering, big plants $25

Paph. spicerianum: Cool-grower from India. Eye-catching broad white dorsal sparkles against intense green segments, and large purple-flushed lip. Flowers autumn $25

Paph. linii: Compact, warm-growing Borneo species; elegantly combines pinks & greens. Winter flowering, big plants. Unusual feature: it does NOT like air-movement.....$25

Paph. spicerianum

Paph. venustum

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Masdevallia pyxis from Peru. Clusters of unusually shaped speckled yellow flowers. Big, well established clumps of this unusual species for.....$35

Masd. burfordiensis also from Peru. The waxy yellow fls. overlaid with maroon are large for the genus. Well-established $35

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Again, these are big strong plants of some of the more spectacular Brassia species. **B. caudata** has long lanky greenish yellow flowers and grows cool. **B. maculata** is showy and quite different; yellow with brown bars. And there's a **Brassia unknown** from Peru that throws showy yellow flowers in Winter. Buy all three at $25 each.

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Oncid. hastilabium

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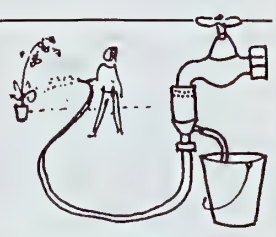

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OUR COVER

Sarcochilus fitzgeraldii 'Alison' CC/NSW. A very fine flowering of this popular Australian native orchid species. The owner, Darryl Smedley, received a Cultural Certificate for this plant in October, 1989 from the Orchid Society of NSW. See story on page 4.

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Sarcochilus fitzgeraldii

by Darryl Smedley

HISTORY OF THE SPECIES

Sarcochilus fitzgeraldii F. Muell was described by the Victorian colonial botanist Baron Sir Ferdinand von Mueller in 1870 in his Fragmenta Phytographiae Australiae. Von Mueller's type plant was collected from Naroo Falls on the Bellinger River near Dorrigo NSW by that outstanding 19th Century orchidologist, Robert Fitzgerald. He was justly commemorated in the specific epiphet by von Mueller.

Two varieties have been described, 'var. alba' by Schultz in 1927 in the *Orchid Review* and 'var. aemulus' by Rupp in 1944 in the *Proceedings of the Linnean Society of New South Wales.* There is considerable variation in the amount of pink or crimson markings on the segments and these varieties are no longer recognised at a taxonomic level. However, both 'varieties' (or more appropriately, colour forms) are of horticultural value, especially 'var. aemulus' where a beautiful red or crimson colours the whole of the petals and sepals.

HABITAT

The habitat of *S. fitzgeraldii* has to be some of the most wonderful country on the east coast of the continent. Its home is the deep shaded gullies and ravines of the Great Dividing Range from the Macleay River in NSW to about Malaney in southern Qld. Such country gave rise to that evocative description by Fitzgerald in his Australian Orchids of 1877:

"Within the sprays of the Naroo Falls and the surrounding streams, *Sarcochilus fitzgeraldii* was found in masses clinging to the dripping rocks and covering the black basalt and with its green roots that stretched for yards over the smooth surface and followed the mossy crevices . . . The rich vegetation, black basalt and white foaming river, with glimpses through the tops of the trees of the ever-falling water made one of those rare spots in which the world is forgotten and the longings of the naturalist realised."

I take solace from the fact that some of these places still exist. They take a little searching out but are worth the effort, particularly if you're amongst *S. fitzgeraldii* to add to the pleasure of being in that spectacular part of Australia.

Within the gullies and ravines, *S. fitzgeraldii's* special niche is the large boulders and steep rock walls of the high mountain streams, always in localities that are cool and humid and, because of the swift flowing water, have constantly moving air.

In such places, *S. fitzgeraldii* can grow into extensive matts covering large areas of rock. Just occasionally it will extend onto the butts of trees, otherwise it is strictly lithophytic.

CULTIVATION

I purchased *S. fitzgeraldii* 'Alison' CC/NSW (see cover photo.) as a single growth in a 70mm squat pot from Bob Deane's nursery in 1978. Growth was reasonable and it was repotted into its present container in the spring of 1983. This was after I first read Mike Harrison's initial article (Harrison 1981) in his excellent series on cultivation of native species published in *The Orchadian.* I would recommend this series to anyone making a serious attempt at cultivation of native orchids.

Having regard for the natural habitat of this species, the media chosen was as chunky as possible to provide good aeration for the roots with the materials selected to retain that all important moisture without being constantly wet and soggy. The media consists of a mix of 3-4cm pieces of sandstone, pine bark and *Casuarina* bark in approximately equal proportions. This mix would probably last another couple of years but will be replaced this year to ensure the plant remains in sound media.

Bearing in mind that the roots run long and free in the bush, the pot had to be wide and shallow rather than tall and deep. The container chosen was a 55mm deep terra-cotta saucer 22cm diameter with three 6mm holes drilled around the edge and one in the centre of the base.

Root growth after transfer to this

Sarcochilus fitzgeraldii 'Lyndall' HCC/AOC—NSW. This plant recieved an award from the Orchid Society of NSW in October 1989 because of its superior shape (general form) and colour. Owned by Darryl Smedley.

arrangement was excellent; roots quickly growing through the media and around, over and out of the container. A large healthy root system means a strong vigorous plant. So it was, and is, with *S. fitzgeraldii* 'Alison' (named after my wife incidentally).

The plant continued to expand, covering the saucer and then some. At the time of the award at the OSNSW meeting in October 1989 it was 44cm in diameter with multiple growths. 'Alison' has proved to be a very floriferous clone, each lead producing up to six inflorescences each season with about 10-12 flowers per raceme.

For the last five years it has been housed, along with all my other cool growing *Sarcanthinae* species and hybrids, in a 50% shadehouse in the backyard. Fifty percent shade may not sound enough to many readers for this orchid but there are two things you need to know, one about the species and one about my backyard.

In the aforementioned deep shaded gullies and ravines, there can be large breaks in the canopy over the stream. Some plants in the gullies can receive quite a few hours of sunlight during the day.

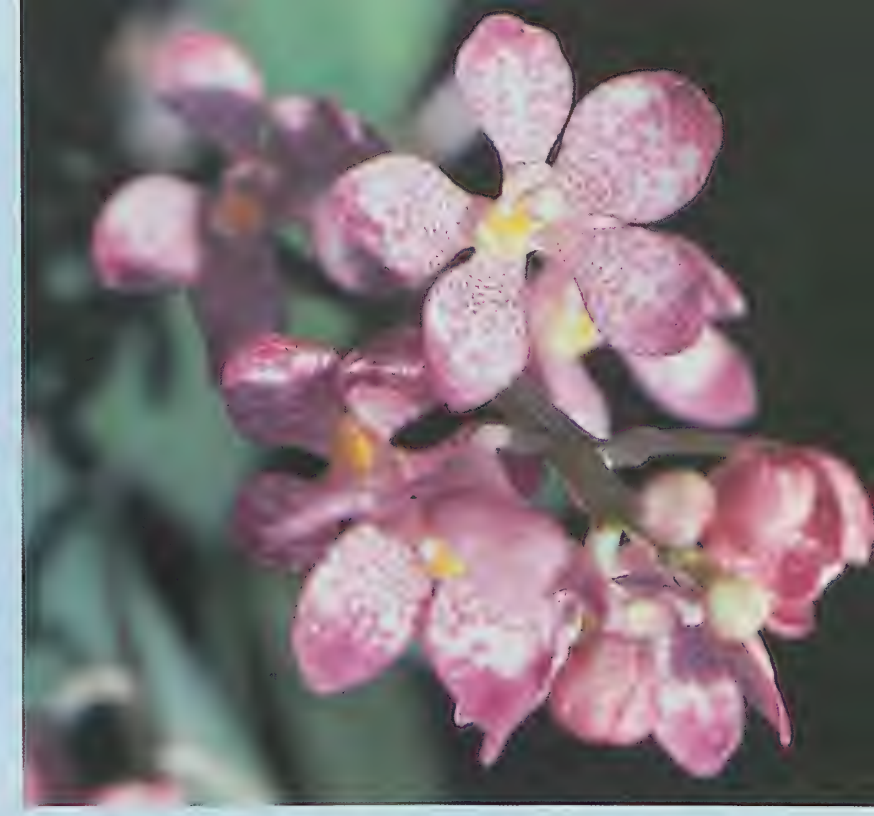
Thus, the species has a degree of tolerance to strong light. The other thing is there is a large Lemon-scented Gum, *Eucalyptus, citriodora* in the middle of my backyard. On the eastern side are my shadehouses. They receive full morning sun all the year and are protected from the searing heat and light of the harsh afternoon sun by the shade of the gum. Hence my ability to get away with only 50% shadecloth over my *Sarcochilus* plants. This extra light may contribute to the floriferousness of the clone.

Up until 1985 my fertiliser programme consisted of irregular applications of various proprietary Nitrogen based concoctions in the warmer months. I then readily embraced the ideas of Bill Johnson (Johnson 1984) and have used his re-balanced Aquasol recipe throughout the collection ever since without problems.

Of course, all we growers are prone to tinkering with systems with the aim of doing just that little bit better than one's colleagues. Accordingly, I vary the Johnson's routine one watering in four by changing to an organic fertilser with an N:P:K: ratio similar to that usually used. I believe, but don't have the facilities to prove, that the orchids respond just that little bit better to a varied diet incorporating organic material.

LINE-BREEDING

Unlike its close relative *S. hartmannii, S. fitzgeraldii* has been fairly neglected in line-breeding programmes. Only in the last few years have selected seedlings become generally available from such breeders as Ken Russell from Dungog NSW and Ted Gregory from Mount Tamborine Qld. Other growers have produced *S. fitzgeraldii* seedlings over the years but their distribution has been limited.



Sarcochilus fitzgeraldii 'Bee' AD/QOS. This clone exhibits very intense colour for this species. The Queensland Orchid Society gave it an Award of Distinction for this colour in October, 1986.

At the time of writing, February 1990, *S. fitzgeraldii* 'Alison' CC/NSW is carrying three pods. The pollen came from another of my "Fitzies", *S. fitzgeraldii* 'Lyndall' HCC/AOC-NSW. This clone was awarded at the same OSNSW meeting as *S. fitzgeraldii* 'Alison'. Look out for these seedlings in the future, as well as 'Lyndall' x 'Bradford'; 'Bradford' being one of the late Lloyd Bradford's quality clones.

CONSERVATION

Regrettably, such undisturbed scenes that so moved the early naturalists such as Fitzgerald are no longer with us. Happily, what remains has a measure of protection as, following representations from the Australasian Native Orchid Society the NSW National Parks & Wildlife Service in 1984 removed *S. fitzgeraldii* (and *S. hartmannii, S. ceciliae* and *Dendrobium falcorostrum*) from the list of species for which they would grant commercial pickers licences. I'm not sure of the standard of legal protection in Qld.

We have been responsible for the removal of tonnes of this and kindred species from their special places over the years. I, and no doubt others, know of places where the habitat is apparently still pristine. I'll do my best to ensure they stay that way.

SUMMARY

So, the message is, patronise those growers producing this and other line-bred species. These seedlings will be bigger, brighter and better (if the breeder has done his job properly) than anything from the bush. They are the future of our hobby and the future for those plants still in the wild, they all deserve a fair go. Ensure that your plants have a moist open media in a container that allows a good root run, provide a cool humid and airy environment and fertilise regularly. You will be blessed with an orchid you will be proud to display on any showbench or just smuggly admire at home.

REFERENCES

Harrison M. 1981; Cultivation Based on Habitat Observation — I *Sarcochilus fitzgeraldii*, *The Orchadian* Vol. 7 No. 2 pp 34-35.

Johnson W.R. 1984; A Simple Nutritional Programme for Orchids, *Aust. Orchid Review* Vol. 49 No. 3 pp 197-204.

The *Phalaenopsis* house, North Townsville — *Photography S. Hinds, S. Hinds collection.*

Phalaenopsis in Townsville

Text: R. Smythe MSc. Photography: R. Smythe (unless otherwise stated).

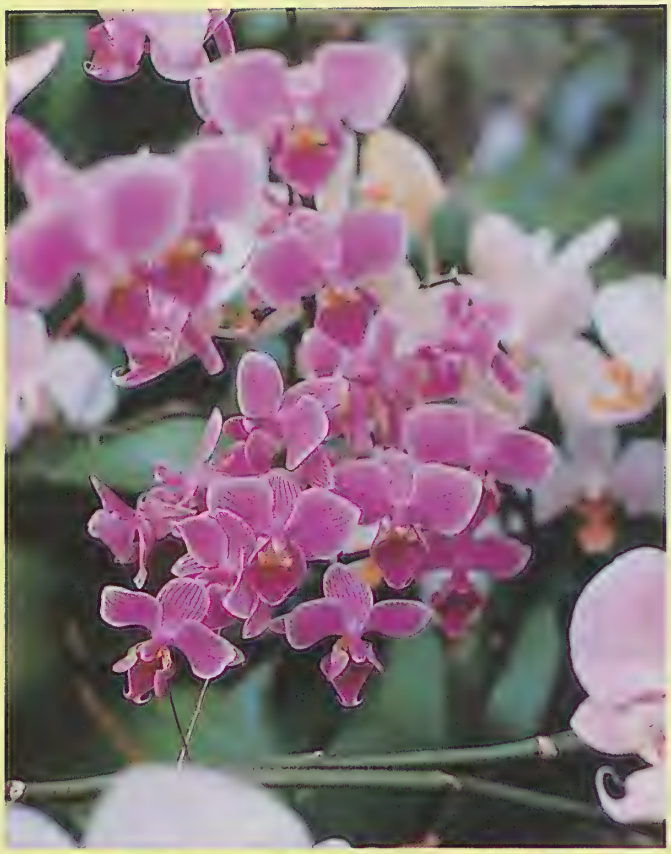
Top left: *P.* Walter Bevelle. Above left: (unnamed). Top centre: *P. fasciata.* Centre: *P.* Paifang's Golden Dragon. Above: *P. gigantea* x *P.* Fifi xx *P. pulchra.* Top right: *P.* Walter Bevelle. Above right: Superb local form of *P. lueddemanniana* 'Wilkie'. Note the warm like brown markings on tips of the petals — *R. Smythe's collection.*

Top centre: *P. fasciata*. Centre: *P. lueddemanniana* 'Wilkie'. Above: *P. lueddemanniana*. All others *P. lueddemanniana* 'delicata' — *R. Smythe's collection.*

Townsville is situated in the tropics at latitude 19° South and is on the sea. Within half an hour's drive to the north we find the most southerly native *Phalaenopsis* in the world. The "Mt. Spec" orchid or *P. amabilis* grows from sea level, following the jungle strewn creeks up to the top of the Sea View Range. In times gone by they were common at the mountain base but have always been sparse at the top. They were most prolific at about the 500 metre level, growing near waterfalls. They grew on rocks and on trees right down to ground level but now are most often seen high up in big trees. To see large plants in flower in the wild is one of the most enjoyable orchid experiences one could have.

Well, with this introduction it should be axiomatic that Townsville would have an ideal climate for growing *Phalaenopsis*. This has to be true but we humans have to defy nature and plant our plants vertical like vandas. In nature, *Phalaenopsis* are always pendulous with the crown being at the highest point. Such cultivation techniques as mentioned promote crown rot unless a roof is provided to keep the wet season at bay.

P. Grosbeak — R. Mulligan's collection. *Photography K. Otto, K. Otto's collection.*



Top: *P.* Marcie Girl x *P. equestris.* Above: *Dtps* Mem Clarence Schubert x *P.* Malibu Pink — *R. Mulligan's collection.*

Over the years many growers have succeeded without a roof by planting the orchids on trees, having them grow out of the sides of baskets of peat or even growing them on cement walls. This encourages the natural growth and is only possible as a result of our suitable climate. The conventional enthusiast uses a covered roof, good ventilation (some use fans) and large potting material which provides both drainage and exposure of the roots to the light. *Phalaenopsis* photosynthesize a lot using their roots.

The diseases we encounter are crown rot, red spider and false spider mite, mealy bug on stems and roots, leaf and flower rust spots. This year, after the long wet we had the addition of a mice plague so we can add mouse and cat damage to the list. A good length of 4 x 2 fixed this problem. No! The cat is all right, just a little bored. Various potting materials are used successfully in Townsville ranging from blue metal/hydroponics through to *Sphagnum* with "chooks" as fertilizer. Success is just a case of watering management. To be honest the one to two year potting cycle usually used should be replaced by a biannual potting programme with peat during the dry and stone during the wet.

The largest *Phalaenopsis* in the area can be seen on the northern outskirt of the city. Sheddy Hinds has a commercial establishment designed to attract the tourist trade and should be visited. The *Phalaenopsis* house has three sides of solid cement block, a hip roof and fans operating in reverse. The plants are started in crevices in the wall and grow as they do in nature. Some grow to enormous sizes with unbelievable number of flowers. He has specialized in large whites, soft pinks contrasted by *P.gigantea* crosses spotted throughout the collection. Because of the stagnation caused by overgrowth of creepers, at one stage, I noticed all the leaves rotting off. Much to my surprise, on a subsequent visit during the dry, the plants were vigorous and back to normal. With their hanging habit the crowns had survived the wet.

Warren and Clara Sewell keep an immaculate collection of show bench whites and pinks. Every plant is perfectly cared for in a conventional shade cloth bush house once again protected by a fibreglass roof. The pots are kept close to the ground, this maintains a high humidity and allows enough room for the large spikes to develop. The spikes have to be supported by aluminium cable to prevent snapping. In addition to the many

Sewell's collection (front bench).

show bench plants the Sewells have, there are three plants of interest to the hybridizer. *P.* Wu-Jiang is a large white spotted and splashed with pink. It is a cross where the pink of *P.* Abendrot has reinforced the spotting of *P.* Paifang's Queen. The size, shape, presentation and eye catching pattern will make this a parent of future award winning plants. *P.* George Vasquez x *P.* Stellar Beauty though probably a 3N has great potential. The deep violet colour is extremely intense. The flower is a large star and nearly concolour. Until this year no crosses had taken, but with a little chemical inducement by myself we hope the pods now holding produce viable seed.

P. Lynn Hausermann *(P.* Miami Maid x *P. fasciata)* should be well known. It is a bright spotted yellow spoiled a little by being somewhat reflexed. Breeding is continuing with these plants though not in Townsville.

Let me say more about yellows. I have a theory about fading which I would like to share. I blame the type of *P. lueddemanniana* used. The yellows we admire up here include *P.* Golden Emperor "Sweet". Though a little disappointed with the shape the colour is pleasing. Its cousin *P.* Mt Kaala has some very good shaped forms but has

P. Pamela Wolf — *R. Smythe's collection.*

P. Rick's Pride x *P. equestris — R. Mulligan's collection.*

inferior colour intensity.

Now away from the *P.* Mambo crosses there are some good yellows coming from *P. amboinensis* crossed on to whites. *P.* Antigua is quite large, *P.* Taiwan Green Jade has the best colour. These tend towards the green shade which is in that area of the colour spectrum which some people call green and others see as yellow.

There is another group of large fully shaped flowers turning up in Townsville. They come from complex crosses and so the chance of getting a pure yellow is about one in eight. The cross *P.* Darling Taiwan x *P.* Hiza Nasu for instance has given white with splashes, whites with dots, yellows with dots and yellows with lip colour and concolour yellows. The other cross is *P.* Barbara Moler x *P.* Mem Anna Ventosa which has given very large yellows. So far they are showing small imperfections due to splashes of colour.

Let us now look at the yellows that don't always hold their colour. You will almost invariably find they come from *P. lueddemanniana* or from its cross *P. spica.* Looking at fresh flowers of *P. lueddemanniana* it is quite obvious that many of the flowers have strong brown markings. Except for the

P. (*P.* Fifi x *P. gigantea*) x *P. pulchra — R. Smythe's collection.*

P. Wu-Jiang — *Sewell's collection.*

P. lueddemanniana var *delicata* and a few other select forms this brown fades out as the flower ages. Just like the most brown forms of *P. venosa* give the best yellows, the brown in *P. lueddemanniana* could produce the strongest yellow which may then fade depending on the nature of the parent. It is also possible that in crosses involving *P. venosa, P. amboinensis* and *P. fasciata* that the chemistry is not there to permit the building up of the purple anthocyanin pigments from the related yellow flavones. Forms of *P. lueddemanniana* on the other hand may have the chemical property allowing it to consume the yellow pigment or its precusor. That's only my theory, now back to the Townsville collections.

Keith Otto has one of our better collections of horticulturally important species. After many letters all over the country chasing species most of my collection came from Keith's and from Cairns. There are some thirty odd species up here in the north. In addition to his interest in crossing back using species and botanicals, Keith has built up some fine strains of dark and spotted show bench pinks. A lot of his crosses have been based on a very floriferous plant of *P.* Suzanne.

P. Paifang's Golden Dragon — *R. Smythe's collection.*

Expect some unusually coloured *Phalaenopsis* from the proverbial experimentor Keith Otto.

Ron and Phyllis Merritt have been growing *Phalaenopsis*, like Keith, in a shade cloth bush house with fibre glass covering the *Phalaenopsis*. The difference being that ventilation in one is produced by spacing and the other uses a fan. The Merritts appear to have concentrated more on the yellow tones, spots and splashes. At flowering time the bush house is a blaze of colour with spikes going in all directions reaching for the sky. To find the label is a major undertaking in this collection. There in amongst the plants are the occasional species, primary cross, french spot and miniatures to be discovered. A spectacular collection to visit in the flowering season. There are some fine forms of species such as *P. violacea, P. fasciata* and *P. lueddemanniana* which can only be found in collections which have been built up over many years.

There are a couple of smaller collections of well established plants which seem to follow a theme. Mr Ron Mulligan in addition to having a bench of mixed whites and pinks has a bench of miniatures. These are outstanding eye catchers with their anastimosed branching systems covered with miniature standard shaped bright pink flowers. The most outstanding of these *P. equestris* crosses being a cross with *P.* Marcie Girl. The stripes coming through from the earlier parent *P.* Kathleen Ai while the size, branching and lip colour being strongly influenced by the species in the cross. These sprays look perfect for use as bridal bouquets.

Alan Jones has a specialized collection of Asian crosses. They appear hot and jammed at the end of a 70% shadecloth bush house. Everything looks wrong but he grows them from flask to flower in twelve months. Amongst his collection is one of the most spectacular plants in Townsville. A large plant of *P. schillerana* x *Doritis pulcherrima.* Alan was fortunate enough to buy a plant which retained the full *Phalaenopsis* shaped flower though in miniature. This plant produces very long branching flower spikes. Late in the flowering season a magnificent display of the violet/pink flowers can be seen. This plant is a gem.

Noel Nettle is the "new boy" to *Phalaenopsis* and over the past two years he has collected a bush house dedicated to this genus. He is doing some interesting crosses and has found that enthusiasm does have bounds after all. In this short time the bushhouse is full.

Doreen and Rudy Piltz have a commercial nursery and a private collection of plants which they have kept because, "they just like them." Their plants have been cared for, for many years and as a result some of the early star crosses, *Doritaenopsis* and some species can be seen here. A fair collection of the Asian imports are displayed as stock plants in the commercial section. They were fortunate to retain a plant of *P.* Chiali Freed x *P.* Freed's Danseuse. This cross has consistantly delivered large well shaped strongly striped flowers which up here has no equal amongst the stripes surpassing the renowned *P.* Kathleen Ai seen up here.

Mick Keith is the only other nurseryman not mentioned so far who sells *Phalaenopsis.* His contribution is to import species from the Philippines.

My collection has about two hundred and fifty different plants which I have collected for their breeding potential. Most of the species and many of the early star crosses have been searched out over the past two years. We do have a wonderful genetic bank to work with up here though it is still very difficult to get *P. venosa* pollen. My plants grow three different ways. My older plants, up to fifteen years of age, grow out in the garden on trees where they flower exceptionally well. Two-thirds of my recent collection grow in blue metal in pots while the remainder grow in blue metal on two hydroponic tables. All are fertilized with a custom made hydroponic fertilizer and are protected from the wets by a plastic roofing.

My interest in breeding has led to my gathering of scientific paraphernalia. Flasking, mericloning, chromosome counting and hydroponics are all part of the show. In addition media and fertilizers are produced. Some of the types I am looking towards breeding are large reds, yellows, oranges and the smaller brightly coloured flowers like *P.* Bonnie Vasquez, *P.* Orchid World and *P.* Templed Hills. *P.* Wu - Jiang and *P.* Carnival Magic have attracted my attention and the latter two should produce progeny rivaling or even exceeding the French spots. Reds are a real problem as the reddest flowers are usually small and when the size is increased they tend toward the violet to pink shades. Red is a primary colour and hence cannot be made by the so called paint box mixing. *P. amboinensis* has a red pigment but it fades quickly and this characteristic shows up in its progeny. Hopefully like the fading of yellows we will come to grips with this problem. Genetics are quite complex with *Phalaenopsis* but with study and observation one can understand and use this knowledge hopefully to improve this genus. ■

Happy Hybridizing,
Correspondence,
c/- Chemistry Dept,
James Cook University 4811 QLD.

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The search for *Paphiopedilum violascens*

Text & Photography — Andree Millar

The first Conference of the Convention on International Trade in Endangered Species of Wild Fauna and Flora at which CITES was set up, was held in Washington in 1973. It set up a list of orchid species they considered threatened with extinction, and on Appendix 1 there are 10 orchids and these can only be collected in strict regulation and only authorized in exceptional circumstances. However having done that, the committee stopped there ... one of the ten is *Peristeria elata*, the Dove Orchid of Panama, which some of us know grows wild in orchid gardens in Papua New Guinea and Vanuatu. I can't help wondering why something isn't done to act on that and get it into sufficient propagation to eventually get it back to Panama.

Appendix 11 species are not necessarily now threatened with extinction but may become so unless trade is strictly regulated. The underlined words come from the official paper.

Paphiopedilum violascens — Photo: Salvador Castelo.

Just recently on an orchid trip to Papua New Guinea, I was shown thousands of orchids collected from a logging area and left to die in the sun or be bull-dozed into heaps with the forest detritus and burnt. When I applied for my CITES permit I was told we could not collect these even to save their lives because they were 'wild'.

There were two orchid in that desolate heap my men collected to show me, that I know of only from this area of lowland forest and their habitat is being cut down to the last tree. I could have saved at least 20 of the 68 species there, and my group would have done their best to grow them and flask seeds from them ... because we are ANOS members.

In 1989, because of the intense desire to so many orchidists to grow the genus *Paphiopedilum* all species were transferred to Appendix 1, all species within that genus and in *Phragmipedium*, and in view of all we know of ruthless stripping of these orchids in specialised habitats, it is right and proper, if supervised, and especially if developing countries are assisted in their survival. It can't be done from Lausanne, or wherever the CITES people sit, they will have to get out to these little tropical countries, help them find them, help them with the where-withal to do it, and keep on helping them police it.

On a recent trip to Papua New Guinea, I discovered that two groups of foreign, well-heeled visitors had managed to collect large quantities of *Paphiopedilum violascens*. They brought them to a man I had trained and who now prepares and issues the export permits and CITES papers, and he refused to sign them, in spite of being offered K100 and a bottle of whisky, so they went away. What happened to the plants (one had 300 and the other party 20) I don't know or where they got them from. Obviously they brought them from some village people who don't know about CITES (one doesn't if one wonders where one's next meal of rice and sweet potato is coming from) but we have heard rumours for some time of our Slippers being available in that country. Diplomacy and high finance prevent publicity and names but I did put a report into State.

We have over the years found *Paphiopedilum violascens* in several parts of the country of Papua New Guinea, but they are so remote and so expensive to get there, I don't think it

will ever be endangered, particularly as I know two people who years ago grew it from seed and have plants.

But my mind ... and heart ... go back to that day in 1974 when we first found it.

I was then working in Port Moresby Botanic Gardens, and my boss called me up and told me there was an official request from the Director of the Palmengarten in Frankfurt, Germany, to be taken on a patrol to find *Paphiopedilum violascens*. He quoted a reference in one of the reports of that great man Dr. Len Brass of the Archbold Expeditions, who in mid-1957 found it and made herbarium specimens on Normanby Island, in the D'Entrecasteaux chain. So the boss told me to get organized, and go and find it for him.

The big hurdle was to convince the Transport people (Water) that I wanted a trawler to go cruising through those lovely islands looking for orchids. If it had been fishing research I might not have had to strike such a hard deal, but I got it, and it took me years to keep those fellows satisfied with trees and shrubs for their out-stations; but Australian administration officers worked well together in those halcyon days.

I collected all the patrol gear and was ready when Dr. Schoser arrived with another scientist and a lady who was a great philanthropist in the interests of botanical research, herself a botanist, and I had my first qualms. The photographers, Roy and Margaret Mackay who worked with me on 'Orchids of New Guinea' mercifully joined the patrol. Eventually on Sunday 8th. September 1974 at 9.30 am. we left Port Moresby by air for Alotau, capital of the Milne Bay Province, where we would pick up the trawler. An hour later we returned because of bad weather.

Over the years, people have asked me what do you do on a patrol, well the answer is, we WORKED, and when we came to a lonely outstation, we did what we could as well as enjoying the company of old friends in the service. Never-the-less, the District Commissioner, who had to make his trawler available, extracted his pound of flesh. I would meet the Town Beautification Committee, advise and promise what we could do for them, pay a visit to the K.B. Vocational Centre on arrival (we got there at 3.30 pm.) and at 4.30 pm, I was talking to the most delightful bunch of kids I have ever met. In the evening I would give a slide lecture at the Cameron High School on 'Know and Protect Your Environment', but mostly I answered the students questions about the big towns of Port Moresby and Lae, and my work. Practically all the small population of the town were there with the kids, several hundred altogether and it was great.

At 4 am. I boarded the trawler and found my distinguished passengers a little bemused that it wasn't exactly the Queen Mary, there were two bunks in the dining-kitchen-lounge area, for me and the visiting lady, and the rest slept on the floor. We New Guinea people had taken a few tins of insect spray with us, but it takes a lot to beat sea-going cockroaches, they are great ocean travellers. We sailed all night, or what was left of it, and arrived at the lovely island of Samurai at 9 am next day. There we bought food supplies, handcraft, and lists of what was needed and what we could do. In these days of the Australian Administration, believe me, we worked on patrols, not that I ever underrated the great pleasure of getting out into the country, especially on the trawler.

Well, at Saniba we saw six birds, collected two orchids and two plants of the ornamental *Asclepiadaceae* family I wanted for the gardens (and made specimens) and as soon as we were rated sea-worthy we left for East Cape, where we anchored overnight ... and chased cockroaches.

Next day at Dawn, we headed for Normanby Island and arrived at a place called Wakaiuna at 9 am. It was

Dendrobium cincinatum F.v.M. growing on the Calophyllums on the beach, is, I think section trachyrhizum. Schlechter saw only the flowers from the specimens collected in British Papua, where our islands were.

but the Captain of the elderly 'Yelangili' said that we would have to proceed to the marine base at Saniba Island for a small repair job. This delighted me, I had never been on Saniba but the V.I.P.'s resented any minute away from searching for their beloved *Paphiopedilum violascens*.

So, answering the question, what do we do on patrol; we have to do these things: 1) Make lists of birds seen: 2) orchids and plants to be collected for the University of Biology Departments: 3) What native food is offered for sale: 4) What handicrafts or artifacts were available for sale or could be encouraged. This also meant making scientific specimens of every plant we found, bringing back samples of every

a sad visit, I stopped the boat and we went ashore. The beach was crowded with local people and as many District Administration people who could be called in by radio from out-stations. An old settler, one of the very early settlers in the Milne Bay area had died the night before; she was the last of her family and had stayed on alone, so we stayed to pay her the honour due to a gallant lady at her funeral.

When it was all over we moved down a bit at the request of the villagers who sang and danced a tribute to the late Mrs. Izhod. We found food, bananas, pumpkin, kaukau, pawpaws, coconut and pineapples and we were given a small tuna (14 lbs.) We recorded ten birds including the

Sacred Kingfisher and collected ten orchids, including the lovely *Dendrobium cincinatum* I had only seen once before. All the orchids were on beach *Calaophyllum* or *Brughiera* (mangrove).

The most interesting of the plants we found was *Crinum asiaticum*, called the Monsoon Lily. I had never seen it used as a fish bait so to the visible annoyance of our visitors I stayed to watch the fishermen. The thickened stem, up to 14cm in diameter, between the leaves and the roots is cut into pieces and then wedged on the large hooks of the fishing lines and used as bait. It was most effective.

Dendrobium warianum on Amphlett Islands — I think it has a name change, but this is what we called it when we said hello.

Eventually we moved off and down the island at 3 pm. we came to anchor in Sewa Bay. This had once been a place where the villagers could work as there was a sawmill, but this had closed and the government had turned it into a vocational school. All the kids and the villagers and their teachers and the Patrol Officer and family came down to visit us. Food was plentiful, all we had brought at Saniba plus yams and cucumbers.

The women brought in some pandanus mats, which we brought to add to our beds on the floor and some lovely baskets. I told the people what we had come for and they were not aware they had ever seen this particular orchid but they had a few others I has seen before but recorded as location specimens for the herbarium. We found a new *Myrmecodia* (ant plant) for Professor Lamb, but I spent the time talking to the people. I asked them to let me know where they had any old men, and eventually they took me to one and I sat down and talked to him. When he knew what we wanted, he remembered another fellow who had come looking for plants when he was young . . . he remembered taking Dr. Brass to Mt. Pabinama back in 1957. So I promptly hired him as a guide and a couple of strong fellows to look after him.

However, next morning I had a thought and we decided to investigate the next mountain nearer to us first, Mt. Bwesbwesa, 800 metres. This is typical rain forest in these islands, pandanus, lianes and bamboo, and the tangled undergrowth makes work difficult. We had the incredible good luck to find the little Slipper Orchid within a few hours, growing under the bamboos in the leaf litter. So peace and bliss descended on the party.

So the visitors were happy and we got on with our work. In the afternoon I borrowed the Patrol Officer's speed boat and went down to see the Wilkinsons on their copra plantation. They had been there for thirty years and were a mine of information on the area which I took down for the Historical Society . . . you have never had hospitality until you have visited a plantation in the Islands. They had a proud family, one son then teaching at Gordon's High School, and a daughter who had represented New Guinea at the Suva Games.

Then came a typical departmental stuff-up. A gas cylinder could only be exchanged when empty irrespective of the fact that there was only three days supply and we were several days out of Samarai. I asked the Captain 'What the hell', why didn't he tell me so that I could do something in Samarai and he said it was the 'system'. We would still be there if the Wilkinsons hadn't come to our rescue with a 30 lb cylinder and then all I would have to do would be get it back to them . . . and believe me, that took months.

All told we got in some good work, we registered 11 birds, orchids including two new records for *Podochilus*, three lovely new (to me) Hoyas, and we were offered stacks of food, especially fish. The yams and fish were so good I think I put on ten pounds, and we decided to stay another day at Saribolia, in Sewa Bay, Normanby Island. I did not know when I would get back again, so we got stuck into some botanical collecting.

We had found a new Latouria *Dendrobium* but our greatest finds were the Pitcher plants . . . *Nepenthes*, we found four species and a completely new *Frecinnettia* never before collected. Then an old man brought me a plant he called Buli-buli-tanuwanu and demonstrated its use. The scented oil is crushed out and mixed with coconut meat and used as a fish bait and again that was successful. However the most endearing practice was to rub the scented oil on one's person when one wanted to go courting. Judging by the hilarity of the telling of the story, the plant produces some very attractive interludes. I tried it but the opportunities were limited so I just 'smelled good' as my head collector said.

Perhaps our most valuable information for departmental records was seeing several of the beautiful Goldie's Bird of Paradise (*Paradusiae decora*) which is endemic to Normanby Island. It is somewhat similar to the Red B.O.P. (*P. raggiana*) in behaviour and habitat, but it is much yellower on the back, the plumes are not so dense but when it displays you can see every feather. And on this trip, we had the good fortune to be there on some special bird occasion for their displays were magnificent.

The District Office personnel commented bitterly that there were an increasing number of guns on the

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island and consequently a decreasing number of Birds of Paradise. Guns might have been useful when food was scarce but now with an increasing number of trade stores in the Islands, food can be obtained, handcrafts sold and as one patrol officer said that day 'if we don't jump now while we can there will be little left of our magnificent heritage of beautiful birds and small furry animals to delight the next generation.'

Well, I wonder where that man is now? He was so right, Independence came and old rules and laws discarded . . . they might have been paternal, but they worked.

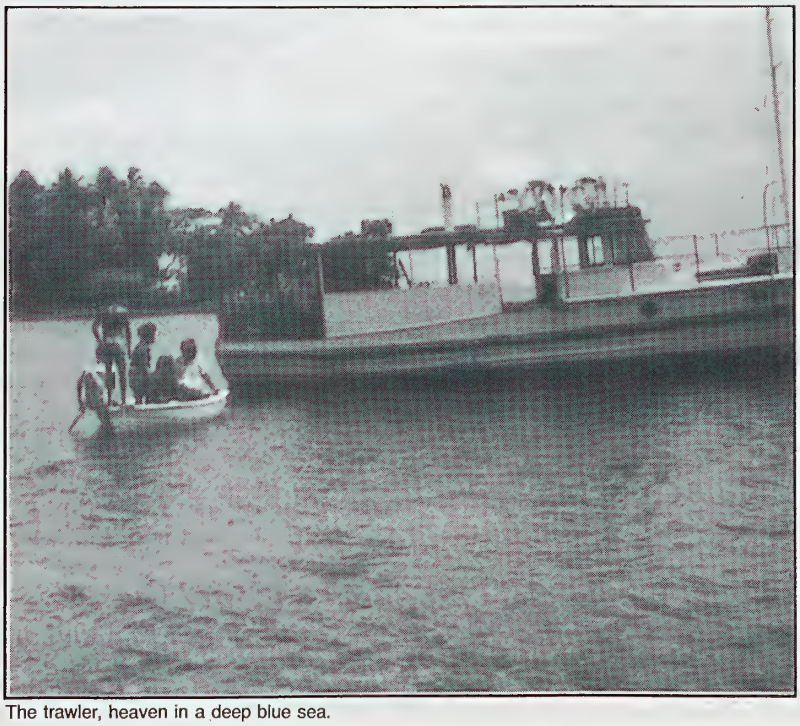
In the early dawn we left Saribolia and as it was National Day, we called at the nearest Island Ess-ala. The A.D.C. met us with considerable ceremony and introduced us to the officials who had come from the Trobriands, Rabaul and Central District to help the Islanders here celebrate National Day with speeches, sports and singing. We took our V.I.P.'s to see the Vulcanological Centre and then went back to the ship. We had planned to leave at midday but the crew vanished, they wanted to join in the celebrations so the magnificent A.D.C. asked us if we would like to use his bathroom and have a hot shower . . . BLISS.

Next day we went on to Ferguson Island and the most interesting thing there were some clay cooking pots from the Amphlett Islands so we left at midday ariving at 4.15 pm. These are the end of the chain and it was beautiful weather so we went ashore immediately, knowing the vagaries of the South Easts. The beaches were beautiful, and the virgin rain forest undisturbed as the wood is only cut for firewood and other plants only for food. We found a beautiful golden variation of the orchid we then called *Dendrobium warianum* and a magnificent *Dendrobium macrophyllum*. We were shown another Mint for fish bait and were delighted with the birds. We believe we sighted some breeding records never before recorded so at least Wild Life would love us when we got back.

These island, the Amphletts, are the home of the pot-makers, the beautiful well-fired pots which belong to the age-old Kula trading ring and are regularly traded in the islands for other desired items . . . or were before the days of rubbish from the East. We bought several shapes and sizes, and took them back for the National Cultural Trust.

We stayed at Wamea Island overnight because the weather was getting difficult. As soon as it was light we left for Mbulibuli Bay on Ferguson Island, in heavy rain and with high seas. We got there about noon and went straight off to collect, leaving our passengers to carefully arrange their boxes of *Paphiopedilums*, the Yelangili had rocked a bit in the storm and disturbed things.

There was nothing new in orchids



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but we made habitat records, found a new *Passiflora*, and checked all the birds we saw, 14 for the day including the Pacific Swallow. We collected some greens for vegetables and went back to have dinner and sleep.

On all our calls we had of course collected and distributed cargo for the various patrol posts and villages and we had some special boxes for Sewataitai, but the weather beat us and we could not get through the reef, so we went to the Serilaia Patrol Post and unloaded there. We had a short time ashore and collected a few plants including a new *Trichoglottis* (new to me that is) but left at noon for the Mission Station at Banama Bay, on the 17th.

Here we were met by the students from the Mission, a very well run school with three teachers, and they also run the Trade Store. The high point here is the beautiful woven work, all made from Pandanus leaves – all kinds of baskets, fringed mats and table mats and fans, and took a consignment on board for Port Moresby. The students went bush with us and we collected seven species that we had not previously found in the other islands, including the best form of *Ascoglossum calopterum* I have ever seen, before or since. All told we collected habitat specimens of forty orchids, and some interesting *Asclepiadaceae* (*Hoya* and Dischidias) and some beautiful *Lycopodium* (tassel ferns).

We stayed overnight here and talked to the students, and they entertained us with dancing and singing. We left Banama at 8 am. and arrived back at Alotau at 3 pm. The District Commissioner had sent transport and we got off and unloaded our miscellaneous cargo as quickly as we could, dumped in a heap on the wharf, as the 'Yelangili' had an urgent request to sail to a medical emergency. We went up to the guest house, and our V.I.P.'s were delighted to be in real surroundings again, beds and showers and meals with a different flavour than those we locals had enjoyed from living off the island produce.

The V.I.P.'s carefully repacked all their plants; we went over all our scientific specimens, sorted and cleaned our plants and packed them in boxes from the trade store and baskets made from coconut leaves.

In the evening we went down to the K.B. Vocational School where the girls, with Mrs Abel (whose family name will ring forever in the history of Milne Bay) had prepared a magnificent meal . . . chicken in various island ways, fish, taro, yam, pumpkin and beautifully cooked 'Agaroa' leaves, botanically called *Gnetom gnemon*. Our sweet was a special fruit salad of pawpaw and pineapple in coconut cream. I showed them some slides of the Orchid Gardens in Port Moresby and we went to bed, also enjoying a real mattress and sheets.

We were due to leave next day, the 10th September, but I had to be up early to meet the town Beautification Committee, and ways in which we could help their forthcoming Garden Competition and newly formed Horticultural Society. Met the District Commissioner and drove around the town and agreed to organize some trees for their street planting.

At 9.30 pm, after loading our material into Air Niugini's plane and a special MacAir charter, we took off for Port Moresby, and arrived back at 12.30 pm.

So that ended the patrol, and in answer to the question 'What do you do on a Patrol', I repeat, we *worked*, but of course we had a marvellous time in those glorious islands. Summing it up:

1. We found the *Paphiopedilum violascens*, on September 12th. 1974, the first time it has been recorded since Schlechter described it as a new species in September 1908 in the Waria where we also discovered it in later years . . . the first time by Andy Gillison, a young man determined to be a botanist and who went looking in Schlechter country, again in bamboo forest. Brass recorded it once from Normanby Island in 1957.

Not long after the trip with Dr. Schoser, we had a report that it had been found on Karkar Island, Madang, so I was sent down to find it. I climbed the volcano, said to be extinct, and eventually found it, growing in moss and stones and leaf litter on the edge, but the sides of the volcano, sheer, steep and straight down were covered in it, but I was not enough of a mountain goat to try and go down, and none of my collectors wanted to either, especially when there were plenty around our feet. One point in which I differ from Schlechter is when he says they are only terrestrial. I found several growing a few feet up the moss-covered trees, although he records it as being distributed by seed and this probably accounts for the tree climbers.

I believe that it still grows in quantities in very inaccessible places and I am glad of that, because over the following years, some overseas entrepreneurs came and took away large numbers. One particular group whose country has signed CITES, is still trying to do that, as I discovered on my visit last year.

Reverting to WORK. We made 56 Herbarium specimens, including 27 spirit collections of orchid flowers, 300 orchid plants.

We brought back 40 different kinds of village crafts, mostly woven mats and baskets, and several beautiful clay pots from the remote Amphlett Islands, and recorded 62 birds in the D'Entrecasteaux for Wild Life.

We made a summary of all the native foods available and quantities, we checked village books and helped with medical assistance, and went out of our way to carry some ill folk to the nearest mission medical centre.

Our V.I.P's did not get to view the cockroaches on our beloved old 'Yelangili' with the same genial aplomb that we did, some of our native foods were not classed as of gourmet standard, but they never complained and slept on the floor like the good orchid collectors they were.

They found their dream, *Paphiopedilum violascens*, and I found the lovely *Dendrobium cincinatum* I had longed for for years. We saw some old friends, made some new ones, and had the incredible good fortune to sail through the D'Entrecasteaux Islands for eleven days.

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Notice to Exporters and Importers of Orchids

At the CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA (CITES) meeting in October 1989 it was decided to list ALL *PAPHIOPEDILUM* and *PHRAGMIPEDIUM* on Appendix I.

The Schedules to the **Wildlife Protection (Regulation of Exports and Imports) Act** will be changed to reflect this decision on 28 February 1990.

This change means that the controls on all species and hybrids in the genera *Paphiopedilum* and *Phragmipedium* are the same as those that have been operating on *Cattleya skinneri* and *Vanda coerulea.*

Importing or exporting Paphiopedilums and Phragmipediums will now require a permit for each shipment ie. **your authority can no longer be used for these plants.**

The procedure for importing will be as follows:

1. Obtain a copy of the CITES export permit from your supplier overseas.
2. Apply (to this Service) on an AP1 form for an import permit. Enclose the copy of the export permit and $14.00 (payable to the Collector of Public Monies).
3. Once you have your import permit, notify your supplier that the shipment, with the original of the CITES export permit, can be sent.
4. When the plants arrive, clear them through Customs by producing your import permit.

When you wish to export, apply on an AP1 form to this Service, enclosing $14.00 (payable to the Collector of Public Monies) and details of the propagating nursery.

NB. Your permits will list all the species in the shipment and the names of plants of each species. If there are extra species or plants in the shipment these plants will be seized.

Flasks of Schedule 1 hybrids usually required a permit for each shipment. However, it has been decided to allow flasked *Paphiopedilum* and *Phragmipedium* hybrids to be imported and exported on an authority. This relaxation does not extend to Schedule 1 *species* in flasks which require a permit for each shipment.

Definition of hybrid

A hybrid is a plant whch is derived from *two or more* species. It is not a plant from a parent which has been "selfed" neither is it a "sibling cross" nor a cross between varieties of the same species.

Summary of new controls on artificially propagated plants

SCHEDULE 1 LISTED ORCHIDS

	SPECIES	HYBRIDS
SEEDS	exempt	exempt
FLASKS	permit	authority
PLANTS	permit	permit

SCHEDULE 2 LISTED ORCHIDS

	SPECIES	HYBRIDS
SEEDS	exempt	exempt
FLASKS	exempt	exempt
PLANTS	authority	authority

Schedule 1 Orchids

Cattleya skinneri
Cattleya trianae
Didiciea cunninghamii
Laelia jongheana
Laelia lobata
Lycaste virginalis var *alba*
Paphiopedilum spp (includes hybrids within the genus)
Peristeria elata
Phragmipedium spp (includes hybrids within the genus)
Renanthera imshootiana
Vanda coerulea

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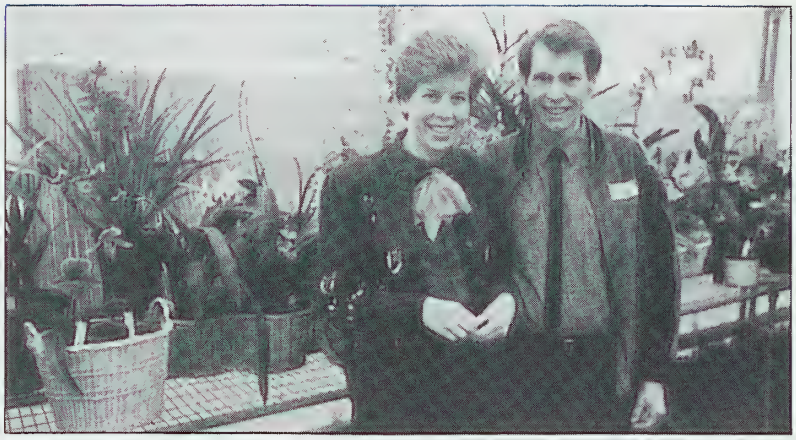
Adelaide Orchids was started in 1964 by the legendary Syd Monkhouse and his wife Shirley, Stephen's parents. In 1989 following their retirement from the business, Stephen and his wife Robyn relocated Adelaide Orchids from O'Halloran Hill to new premises at Pine Road, Woodcroft. The new nursery is ideally set up mostly undercover, so that visitors may browse at their leisure and obtain advice from the staff, with little worry about outside weather conditions. In fact to walk through the front door is like stepping into another world.

Usually when orchids are relocated they suffer a setback. The reverse has been the case with Adelaide Orchids. Last year saw the judges of the Orchid Club of South Australia giving the rare and highly prestigeous F.C.C. to *Paphiopedilum micranthum* 'Emperor'. To achieve this award was the greatest honour ever to be given to Adelaide Orchids. In the first year at the new location six other top awards were received including the reserve Champion at APOC 3 with *Wilsonara* Shirley Monkhouse 'Exquisite'.

Stephen and Robyn encourage clubs and societies and are themselves active members of the Orchid Club of South Australia, The South Coast Orchid Club, The Australian Paphiopedilum Society, and The Orchid S.P.E.C.I.E.S. Society of N.S.W. They both feel it is most important to encourage new growers as well as those more experienced. Already plans have been made for groups from Japan and America to visit the nursery following the World Orchid Conference in Auckland. Adelaide Orchids have a large mail order business and are proud of the professionally printed price list catalogue which is sent to enthusiasts all over the world on a quarterly basis.

The important aspect of hybridising has not been overlooked, with a large laboratory having been setup, well equipped to handle the extensive breeding programmes. The staff participate in every aspect of the business and therefore are well qualified to deal with the diverse enquiries directed to them.



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NT Orchid Spectacular Darwin 2-3 June 1990

The Litchfield Orchid Club will be holding the first annual NT Orchid Spectacular on 2-3 June 1990 in Darwin. The venue will be the Hotel Darwin Convention Centre on the Esplanade, Darwin, NT.

An orchid spectacular such as this is an adventurous undertaking for the Litchfield Orchid Club which is in its third year of growth. It has been a learning experience for all those involved but so far it has been worth it.

The venue for the first annual NT Orchid Spectacular is the historic Hotel Darwin which was built in 1936 and survived many bombing raids by the Japanese during World War II. The Hotel was commandeered by the Australian Military authorities during the war years. The Hotel was extensively damaged during Cyclone Tracy in 1974 with the roof blown and interior ruined. Restoration took place and the Hotel Darwin was reopened for business in June 1976. The Darwin Convention Centre was built adjacent to the Hotel at this time. The Hotel Darwin has a large tropical garden which is used as an outdoor dining area in cooler months.

Darwin has a population of 74,000 and we hope to show residents and tourists that orchids grow exceptionally well in Darwin and do not struggle to survive as most people seem to think.

There will be 26 classes of orchid competition and 4 classes of floral art competition. All prize monies are sponsored and we have enjoyed the support of Darwin business houses and a surprisingly large number of politicians. Everyone loves orchids don't they?

The Chief Minister of the Northern Territory, the Hon. Marshall Perron has donated $500 for the Grand Champion who will also receive the Chief Ministers Trophy. The Reserve Champion will receive $100 donated by Jenny's Orchid Garden.

There are three thriving orchid societies/clubs in Darwin who have an enthusiastic membership and who are working together to support this first Spectacular.

Both the Orchid Society of the NT and the Nightcliff Orchid Society will be represented at the Spectacular with displays promoting their societies.

For further information please contact: The Litchfield Orchid Club, PO Box 59, Palmerston NT 0831. Telephone 80 2774 (wk) 88 1408 (ah) ■

Michelle Riley
President
Litchfield Orchid Club

Orchid Workshop on NSW North Coast

The Far North Coast District Orchid Council is holding a Workshop and Mini-Show at the Memorial Hall, on the Pacific Highway, at Woodburn on Sunday 6th May 1990 from 9.00 am. The Woodburn Orchid Society is hosting the day.

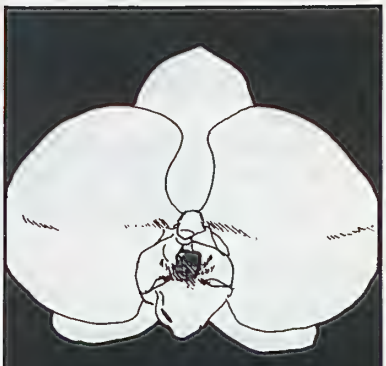
Speakers will emphasise cultural aspects of orchids. Mr Graeme Banks, President of the Orchid Society of NSW, will discuss exhibition paphiopedilums. Mr David Banks, Vice-President of OSNSW will describe culture of the oncidium alliance. Mr Sandy Anderson will give valuable hints on how to grow and flower the popular nobile dendrobium or 'softcane'. Mr Ted Gregory will describe how he grows top Australian native orchids.

Other highlights of the day will be:

- a Mini-Show.
- an expert panel, to include the above speakers, will provide advice on any aspect of orchid culture.
- orchids for sale by local orchid society members and commercial nurseries.
- an auction of quality orchids, with proceeds to the Council.

Woodburn is a short drive away from some of the most popular beaches and fishing spots in northern NSW, such as Evans Head, Ballina, Iluka and Yamba. So, why not combine your favourite hobbies and visit Woodburn at the heart of Summerland for a day not to be missed.

For further information, contact Joyce Widdows on (066) 63 5281 or Bob Saunders on (066) 62 3509. ■



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Introducing the *Grammatophyllum*

I recently exhibited two well flowered plants of *Grammatophyllum elegans* and was frequently asked by many of the members: *What sort of Cymbidium is that?*

The genus is not very well understood as I gathered from one of our meetings recently. Nearly all the orchid growers present had never seen one before. Some of the more experienced growers immediately thought of the giant growing species: *Grammatophyllum speciosum* and therefore had never bothered with any of the species. I guess when you are faced with having to use a forklift and a crane to exhibit your orchid at an orchid show, you would be skeptical about purchasing a *Grammatophyllum*! (the Sultan of Johore had reportedly used this method for exhibiting *G. speciosum* at a Singapore Flower Show[1] as did the person who exhibited one of the same species at the Crystal Palace, London in 1851 which weighed nearly two tons[11]). At least three of the species I am familiar with have flowering sized growths similar in size to a medium sized *Cymbidium*. The genus contains about nine recognised species, but there still exists some confusion with some of these and their known varieties.

Species list:

Large pseudobulbed species:

G. speciosum* var *speciosum — 10cm flowers orchre yellow, blotched and wine red. (Figure 1).

G. speciosum* var *wallisii — flowers ivory white with maroon spotting.

G. papuanum — considered to be a form of *G. speciosum*, flowers are larger than *G. speciosum*. Largest orchid in the world[10].

Smaller pseudobulbed species:

G. scriptum — flowers greenish yellow spotted with brown-purple. (Figure 2). G. E. Rumph caused some confusion by naming two distinct species *G. scriptum*[11].

G. tigrinum — said to be a variety of *G. scriptum* with heavier blotched markings.

G. rumphianum? — said to be a variety of *G. scriptum*.

G. measurianum — considered to be a variety of *G. rumphianum* by Holttum[6].

G. elegans — 6cm flowers are olive green with large dark chocolate markings. (Figure 3).

G. stapeliiflorum — commonly known under the genus *Grammangis*, but Holttum[6] did not consider the change in the genus justified. Flowers grey, spotted with purple.

G. seegerianum?

Table 1

List of *Grammatophyllum* species.

Grammatophyllum species inhabit

Fig. 1. *Grammatophyllum speciosum* growing epiphytically in the Singapore Botanical Gardens in 1985. *G. speciosum* has been recorded growing in clumps 13 metres in circumference and weighing approximately 2 tonnes – *Photo by Rob Manning.*

lowland forests of tropical countries from Burma, Indonesia, Philippines, Malaysia through to New Guinea and the Solomon Islands. The genus was probably first discovered by Rumph in Malaysia in the mid 1700's[2]. Over time the species have been catalogued under the genus *Epidendrum* by Linnaeus, *Vanda* by Spreng, *Cymbidium* by Swartz and *Pattonia* by Wight[3]. In 1825, C. Blume gave the genus its present name[2,3]. The genus is closely related to *Cymbidium* (where intergeneric hybrids have been successfully produced), and African *Ansellia* genus (hybrids have been attempted) and distant to *Vanda*.

The flowers of all species are distinctively marked with spots, blotches or "alphabetical" squiggles on the tepals. The markings have given some of the species common names like "Tiger Orchid"[3], "Leopard Orchid"[4] and the "The Letter Plant"[5]. All species are fragrant, those of *G. elegans* are reminicent of sweet honey and are similar in that respect to *Dendrobium discolor*. The flowers of *G. stapelliiflorum* are said to have a peculiar scent[1]. The flowers are all extremely long lasting, at least two months are normal and if the water (from overhead watering) is dried from the flowers by night fall (to avoid marking) a three month flower display is possible. The first few flowers on the raceme can be abnormally developed (for one reason or another) and this is characteristic of the genus[2,3,5,7,10] and should be noted by Judges of orchids that this is a natural phenomenon.

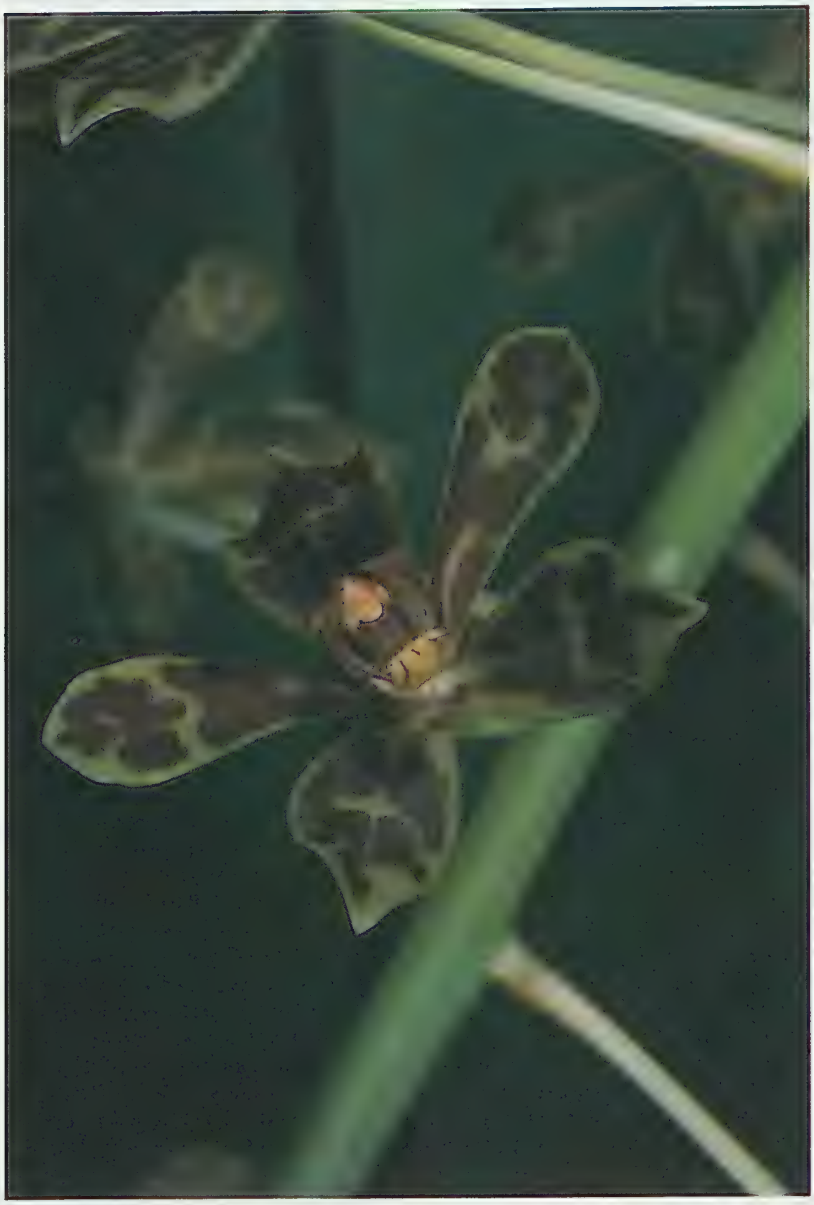

Fig. 2. *Grammatophyllum scriptum*, the author's plant which was imported from the Philippines. It is said that a strong love potion can be concocted from the seeds and a paste made from the pseudobulbs can heal sores – *Photo by Derek Mead-Hunter.*

I purchased my plants in late 1982 from the Philippines and were subsequently released from quarantine in Perth in January 1983. In the release were a small plant of: *G. elegans, G. scriptum* and *G. tigrinum*. The only species that did not survive the rigors of quarantine was *G. speciosum*. In a later import, *G. seegerianum* — an expensive orchid at the time, also died in quarantine. After their release, the orchids were housed in a plastic igloo (6m X 2m), here they grew well in plenty of light, high humidity and a temperature which generally followed the outside temperature for three years [Summer (December-February) temperatures can range from 12°C min-40°C max and winter (June-August) temperatures from 3°C min-20°C max]. The only problem I had was over the first winter, where a couple of the species suffered bulb rot, I was able to cure the problem and in subsequent years I was more careful about watering over this period.

These days, the orchids are housed in a glasshouse (9m X 6m) which is only heated for two months of the year from July to August. In October 1988, I noticed a new growth which turned out to be a flower raceme appearing on *G. elegans*. The orchid was in full flower by November — five years after its release from quarantine. You could say I was *very* happy about that! Again, this year, the orchid has produced two racemes displaying 57 flowers. For the first time *G. scriptum* has also developed two racemes which flowered mid-December, six years after its release from quarantine. Presently there are two racemes carrying 167 flowers.

In their native habitat, the species enjoy bright light with some species like *G. speciosum* able to grow out in full tropical sun. A couple of the species have "resting" periods from December to January — over their flowering period. In Perth, I prefer to use terracotta pots and I would suggest that hanging baskets would also be suitable to grow these orchids. The potting mix contains a mixture of charcoal, pine bark or woodchip. When these orchids have developed their new growths to about 6cm long, new roots should have started to penetrate the mix indicating that watering and fertilizing can now be done liberally. After the new growth has matured both watering and fertilizing can be restricted to a "maintenance" level. Misting the plants over this period

Fig. 3. The attractive *Grammatophyllum elegans*, another of the author's plants from the Philippines – *Photo by Derek Mead-Hunter.*

would be sufficient.

All the species have large fleshy roots which are indicative that the species are "heavy feeders". A proportion of the roots grow vertically like they do for *Dendrobium Tarberi* (syn *D. speciosum* var *hillii*) and most *Catasetums* where they act as "trash baskets". These roots trap falling bark and leaves for additional nutrition in their natural habitat.

Grammatophyllum's, as I mentioned before, can be hybridized with *Cymbidium*. The first recorded cross was registered in 1966 as *Grammatocymbidium* Emil Anderson which came from the cross of *Cymbidium pendulum* and *Grammatophyllum measurianum*. The second cross was registered as *Grcym* Willian Kirch 'Featherhill' and was between *G. papuanum* and *Cym* Oiso°. The cross was developed in Hawaii by William Kirch Orchids and first flowered at Featherhill Exotic Plants (USA) in 1977. I have no plant of *G. papuanum* but when my *G. elegans* flowered, I was so impressed that I thought it would have great potential for future breeding because of some of its exceptional characteristics such as: flower longevity, shape, texture and the summer flowering period. Details of the William Kirch

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cross indicate the *Cymbidium* has a marked influence in maintaining the size of the plant to a medium sized *Cymbidium* and the *Grammatophyllum* influences the inflorescence, flower colour and shape.

As it happened, when my *G. elegans* flowered in 1988, I also had in flower *Cym findlaysonianum* which I used as the pod parent. The seedlings have germinated well and will probably be deflasked some time this year. This year, as well as selfing the species I have tried pollen of *Cym canaliculatum* "Spotted" and the variety *sparkesii*, *Cym* Cricket, *Cym erythrostylum* 'Magnificum' and a larger red: *Cym* Reckless Tradition X *Cym* Mimi 'Sacramento' — which just happened to be in flower at a friend's place, onto *G. elegans*. I have pollen of *Ansellia nilotica* and *A. gigantea* lined up to pollinate *G. scriptum* (here's hoping!).

There have been hybrids made between *G. elegans* X *G. rumphianum*, *G. tigrinum* X *G. elegans* and *G. elegans* X *G. scriptum* (registered as *G.* Tiger Paw).

Certainly the *Grammatophyllum* species, hybrids and intergeneric hybrids such as *Grammatocymbidiums* will fill a gap in having summer flowering orchids in your orchid collection and the only way to get to know them is to **grow** them. They have been a magnificent sight in my glasshouse for a *long* period of time.

[Postscript — since writing the article, seed pods with *G. elegans* X *Cymbidiums* failed to develop. *G. scriptum* was also crossed to *Cymbidium canaliculatum* using both species as pod parents with no luck. *Cym. findlaysonianum* X *G. scriptum* is developing into a pod. None of the *Ansellia* crosses developed pods].

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Also thanks to Harry Lodge for the information from the Sanders List of Orchid Hybrids. Fred and Allan Bishop, Tim Enright, Noel Verweirder and Ken Jones for the pollen. Derek is OSWA's official photographer.

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The Australasian Native Orchid Society (ANOS) was formed 26 years ago. As its name implies, it is a society that covers orchids endemic to Australasia — apart from Australia and its territories, this includes New Zealand, Papua New Guinea, Fiji, New Caledonia, Irian Jaya, Timor, Solomon Islands and Vanuatu.

ANOS has its own judging panel which undertakes judging responsibilities at shows arranged by either the parent body or by the various ANOS groups, eg the Sydney Group, the Central Coast Group and so on. The standards used for both show, and the recently introduced award, judging follow the Australian Orchid Council standards for Australian native species and the hybrids derived therefrom. (ANOS is an accredited body with the RHS for granting of awards.)

Arising from chance discussions late 1986 between Graeme Banks (OSNSW Registrar) and Sid Batchelor (then on the ANOS judging panel and now the panel's Registrar), formal discussions were held early 1987 aimed at establishing a basis of closer liaison and co-operation between ANOS and OSNSW on judging and judging related matters.

Proposals were developed and formally submitted to both societies, they were accepted without amendment and became operational on 1st July, 1987. In summary the arrangements are as follows:

1. The ANOS judging panel to become a specific judging panel of the Orchid Society of New South Wales.

2. ANOS itself and the ANOS panel continue to maintain completely separate identity. The ANOS Registrar to be the ANOS Registrar of the OSNSW.

3. The ANOS Registrar to control allocation of judges to ANOS affiliated societies or to any OSNSW affiliated society seeking ANOS judging of Australian native orchid sections. ANOS panel to be called upon to judge native sections of OSNSW winter and spring shows and to determine champion/s for later consideration for grand champion etc.

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"THE PLACE TO GO"

4. Where an ANOS member has a plant which he or she desires to have submitted for consideration for an Australian Orchid Council award, the ANOS panel considers the application which, if plant is considered worthy of an award, is processed by the ANOS Registrar and forwarded to the OSNSW Registrar for consideration and subsequent referral to the AOC.

5. AOC judging standards to apply both for show and award judging. The ANOS panel can recommend alterations to the AOC standards; through the OSNSW Registrar and the panel.

6. All existing ANOS judges became automatically ANOS judges of the OSNSW.

Since the introduction of these new arrangements, the ANOS panel has judged the Australian native orchid sections at OSNSW winter and spring shows and at many OSNSW affiliated societies.

The new procedures had their final testing recently when the ANOS panel considered two plants of *Sarcochilus hartmannii* for awards. The ANOS panel gave highly commended certificates (HCCs) to both plants and recommended them for similar OSNSW awards and, if approved, referral to the Australian Orchid Council. OSNSW accepted the recommendations — submissions will now be made to the AOC.

Further evidence of the close liaison will be seen later in the year with the first ANOS conference and show to be held at Wollongong University from 27th to 30th September, 1990. An imposing list of speakers has been arranged for the conference and the show will be the largest and most spectacular ever seen in Australia.

OSNSW has offered to assist in any way it can with the conference and show be it by way of promotion, publicity, general help or whatever. OSNSW will be providing a trophy for the best display — to be judged across the three display sections.

Both the conference and the show must not be missed by anyone interested in orchids generally or Australian native orchids in particular.

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An American's Enthusiasm for *Dendrobium speciosum*

In September 1989, I journeyed to Queensland, Australia to attend the Toowoomba Orchid Spectacular. While photographing several of the exhibits at the Show, I came across a very large specimen plant of *Dendrobium speciosum* var. *hillii*, Bailey. It was a genuine specimen plant. The plant was covered with over 50 peduncles of fully opened very light cream coloured flowers. The flower spikes were all about 2½ feet long and covered with blossoms. I had never seen such a floriferous specimen plant previously. While focusing my camera in on the plant, a lady standing next to me said, "You should see the plant on Rogers Street. It is really immense." During Saturday at the Show I heard similar comments during the day.

Brian and Gloria Pearce, friends I was visiting with, had also heard those comments about that plant, so Sunday morning we piled into his van and started looking for Rogers Street. After travelling for quite a few blocks, suddenly the three of us spotted it at the same time. It was a very spectacular sight! There on a palm tree in full sun was really a specimen plant. It was covered with well over 100 inflorescenses with bright rich cream coloured flowers that arched way out from the foliage. Here was a genuine specimen plant.

The lady of the house was in the front yard watering her flower garden when we pulled up. We asked permission to photograph the plant, which she readily agreed to. Asked how long the plant had been growing there she replied she had no idea as they had just purchased the home a couple of years ago and were not orchid growers. The two mile trip to view this specimen was well worth the time and effort. ■

Ben Hardy,
9443 E. Heaney Circle,
Santee, Ca. 92017

Ben Hardy standing beside *Dendrobium Speciosum* plant – *Photo: Brian Pearce.*

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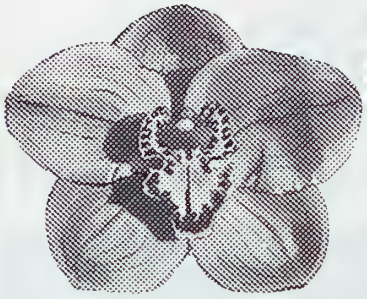

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TROPHIES AWARDED FOR 1989

Once again 18 Nominations were received from 12 ANOS groups or State Orchid Societies or Councils. The standard of entries has continued to be high. The entries were —

ANOS
— Central Coast Group Spring Show — *Den.* Rosemary Jupp — C. Arnott.
— Far North Coast N.S.W. Spring Show — *Den.* Ellen — H.G. Young.
— Sydney Group Spring Show — *Den.* Tarean — B. Fletcher
Sarcanthanae Show — *Sarc.* Jewell — S. Batchelor
— Warringah Group Spring Show — *Den.* Rosemary Jupp — C. Arnott.
Native Orchid Society of S.A. Spring Show — *Den.* Sunglow — B. Mules.
Wollongong and District N.O.S. Spring Show No.1 — *Den.* Dainty Cascades — S. and C. Popple.
Spring Show No.2 — *Sarc.* Melba — R. Wheeldon.
Orchid Club of S.A. Autumn Show — *Pterostylis abrupta* x *Pt. rogersii* — L.T. and M.K. Nesbitt.
Winter Show — *Den.* Blushing Sun — R. and P. Rankin.
Spring Show — *Diuris* Pioneer 'Big Ears' — A. and D. Garner.
Orchid Society of N.S.W. Winter Show — *Den.* Hilda Poxon — S.R. Elliott
Spring Show — *Den.* Bardo Rose — P. Spence.
Orchid Society of W.A. Winter Show — *Den.* Hilda Poxon — F. and H. Patfield.
Spring Show — *Den.* x delicatum — G. and A. Hansen.
Queensland Orchid Society — Awarded Plant — *Den.* Our Native 'Sunshine Coast' A.M. — Lyn Grubb.
Tasmanian Orchid Society Spring Show — *Den.* Hewittglo 'Bronilyn' — J. and B. Smith.
North Moreton Qld. Orchid Council Charity Orchid Spectacular — *Den.* Gloucester Sands — H. and L. Appel.

CHAMPION AUSTRALIAN NATIVE ORCHID HYBRID OF 1989

Trophy won by Lyn Grubb for *Dendrobium* Our Native 'Sunshine Coast' A.M./QOS.

The plant was an outstanding form of this hybrid. It was very floriferous, and the flowers were well displayed, well balanced, of good shape and colour. The photography did the plant justice. Not only was it awarded an A.M. by Queensland Orchid Society but it was Champion Native Orchid Hybrid of the Caloundra Conference 1988.

Once again all entrants are to be congratulated on the standard of their entries. New hybrids and remakes of old hybrids are ensuring a steady improvement each year.

Nomination forms for 1990 will be sent to all ANOS Groups and Orchid Societies in April 1990. Hopefully slides sets of hybrids wil! be made available during the year.

We thank you for your participation in our efforts to save orchids in the bush, by encouraging the growing of beautiful hybrids.

Ruth Rudkin,
Honorary Secretary,
on behalf of the Committee.

Dendrobium Our Native 'Sunshine Coast' AM/QOS.

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NEW SOUTH WALES

Orchid Society of New South Wales Ltd
WINTER: Roselands Shopping Centre,
Monday 11th-Sunday 17th June
Shopping Centre hours

The Australian Native Orchid Society Second Autumn Show
AUTUMN: Brentwood Village Auditorium, Kincumber
Sunday April 29th, 10am-4pm

The Ballina and District Orchid Society Inc.
WINTER: Ballina Fair Shopping Centre, Kerr Street
Thursday 10th-Friday 11th May, 8.30am-5.30pm
Saturday 12th May, 8.30am-1pm

Berowra and Districts Orchid Society Autumn Show
AUTUMN: Berowra Community Centre, The Gully Road, Berowra
Thursday 19th April, 8pm

Blue Mountains and District Orchid Society
WINTER: K Mart, Thursday 31st May-Saturday 2nd June Shopping Centre hours

Boolaroo Orchid Society Autumn Show
AUTUMN: Garden City — Cnr Park Avenue and Northcott Drive Kotara
Wednesday 2nd May, 8.30am-5.30pm
Thursday 3rd May, 8.30am-9.00pm
Friday 4th May, 8.30am-5.30pm
Saturday 5th May, 8.30am-2.00pm

Casino and District Orchid Society Inc.
AUTUMN: R.S.L. Hall, Canterbury Street, Casino
Friday 27th April, 9am-6pm
Saturday 28th April, 9am-4.30pm

City of Lismore Orchid Society Autumn Open Show
AUTUMN: Fountain Room, City Hall, Bruxner Highway, Lismore
Friday 20th-Saturday 21st April, 9am-7pm
Sunday 22nd April, 9am-3pm

Coffs Harbour Orchid Society Inc, Plaza Autumn Show
AUTUMN: Park Beach Plaza, Coffs Harbour
Wednesday 23rd-Saturday 26th May
Shopping Centre hours

Gosford and District Orchid Society 39th Annual Winter Show
WINTER: Marketown Shopping Centre
Cnr Henry Parry Drive and William Street, Gosford
Monday 18th-Wednesday 20th June, 8.30am-5.30pm
Thursday 21st June, 8.30am-9.00pm
Friday 22nd June, 8.30am-5.30pm
Saturday 23rd June, 8.30am-12.30pm

Grafton District Orchid Society Incorporated
AUTUMN: Grafton Shopping World
Thursday 10th-Saturday 12th May
Shopping Centre hours

Great Lakes Winter Orchid Show
WINTER: Forster Primary School
Saturday 2nd June, 9am-5pm
Sunday 3rd June, 9am-4pm

Hastings River Orchid Society Inc.
AUTUMN: Uniting Church Hall, Hastings Street Wauchope
Friday 6th April, 8.00am-8.00pm

Hawkesbury District Orchid Society
WINTER: Senior Citizens Hall, March Street, Richmond
Saturday 2nd June, 11am-5pm
Sunday 3rd June, 9.30am-5pm

Hunter Region Combined Orchid Society
AUTUMN: Lake Macquarie Fair, Mt. Hutton
Wednesday 18th-Friday 20th April, 8.30am-5.00pm
Saturday 21st April, 8.30am-1.00pm

Ku-Ring-Gai Orchid Society Inc.
WINTER: Westfield Shoppingtown, Hornsby
Thursday 10th May, 9.00am-9.00pm
Friday 11th May, 9.00am-5.00pm
Saturday 12th May, 9.00am-4.00pm

Maitland and Coalfields District Orchid Society Inc. Winter Show
WINTER: Cessnock Market Place, Cessnock
Thursday 21st June, 8.30am-9.00pm
Friday 22nd June, Shopping Centre hours
Saturday 23rd June, 8.30am-2.00pm

Manly Warringah Orchid Society Inc
WINTER: Warriewood Square, Warriewood
Thursday 14th, Friday 15th June, 8.00am-8.00pm
Saturday 16th June, 8.00am-4.00pm

Manning River Orchid Society Winter Show
WINTER: Manning Mall, Manning Street, Taree
Thursday 14th June, 9.00am-9.00pm
Friday 15th June, 9.00am-5.00pm
Saturday 16th June, 9.00am-1.00pm
Free admission

Nambucca Valley Orchid Society Autumn Show
AUTUMN: Nambucca Valley Entertainment Centre,
Ridge Street, Nambucca Heads
Friday 11th May, 9.00am-8.00pm
Saturday 12th May, 9.00-4.00pm

Port Macquarie Orchid Society Inc. Autumn Show
AUTUMN: Settlement City Shopping Centre, Port Macquarie
Thursday 10th May, 9.00am-9.00pm
Friday 11th May, 9.00am-7.00pm
Saturday 12th May, 9.00am-1.00pm

Tweed District Orchid Society Inc
AUTUMN: Tweed Mall Shopping Centre, Tweed Heads
Thursday 10th May-Saturday 12th May
Shopping Centre hours

QUEENSLAND

The Queensland Orchid Society
AUTUMN: Mt. Coot-tha Botanic Gardens Auditorium Mt. Coot-tha. Friday 6th-Sunday 8th April. (9am-5pm).

Aspley Orchid Society Inc.
AUTUMN: Community Hall, Edinburgh Castle Road, Wavell Heights. Saturday 5th-Sunday 6th May. (Sat. 9am-5pm. Sun. 9am-4pm.).

Ayr District Orchid Society
WINTER: Couts' Mall, Queen Street, Ayr. Thursday 10th May 8.30am-9pm and Friday 11th May 8.30am-5pm.

Blackwater Orchid & Foliage Club Inc.
WINTER: Annual Display, town shopping centre, Thursday 10th May-Saturday 12th May. Shopping Centre hours.

Bundaberg Orchid Society Inc.
AUTUMN: Civic Centre, Bourbong Street, Bundaberg. Thursday 10th-Saturday 12th May. 8 am.

Callide Valley Orchid & Foliage Club Inc
AUTUMN: Friday 11th-Saturday 12th May.

Childers & Isis District Orchid Society Inc.
AUTUMN: Autumn Charity Show, Anglican Church Hall, McIlwraith Street, Childers. Saturday 19th May 9am-5pm-Sunday 20th May 10.30am-3pm.

Darling Downs Orchid Association Inc
AUTUMN: QCWA Hall, 263 Margaret Street, Toowoomba.

Thursday 26th-Saturday 28th April. (Thurs. 8.30am-9pm. Fri 8.30am-6pm. Sat. 8.30am-3pm.)

Gympie & District Orchid Society Inc.
AUTUMN: Civic Centre, Mellor Street, Gympie. Friday 27th-Saturday 28th April. (Fri. 9am-9pm. Sat. 9am-3pm.).

Hervey Bay Orchid Society Inc
AUTUMN: Hervey House, Pialba. Friday 20th-21st April.

Ipswich Orchid Society Inc
AUTUMN: Bundamba State School Hall, Brisbane Road, Bundamba. Saturday 21st-Sunday 22nd April. (Sat. 8.30am-8pm. Sun. 8.30am-5pm.).

Lockyer Valley Orchid Society Inc
AUTUMN: CWA Rooms, North Street Gatton. Thursday 19th-Saturday 21st April. (Thurs/Fri. 8am-6pm. Sat. 8am-1pm.).

Mackay & District Orchid Society Inc.
AUTUMN: Canelands Shopping Town, Mackay. Wednesday 18th-Saturday 21st April. Shopping Centre hours.

Noosa District Orchid & Foliage Society
AUTUMN: CWA Hall, Maple Street, Cooroy. Friday 11th-Saturday 12th May. (Fri. 8.30am-8pm. Sat. 8.30am-2pm.).

North Queensland Orchid Society, Cairns
AUTUMN: Annual Mothers Day Show. Major Shopping Centre. (TBA). Thursday 10th-Saturday 12th May. Shopping Centre hours.

Pine Rivers Orchid Society
AUTUMN: Albany Creek Shopping Centre, Albany Creek. Thursday 26th-Saturday 28th April. (8.30am -5pm.).
WINTER: Kensington Village Shopping Centre, Bray Park. Thursday 7th-Saturday 9th June. (8.30am-5pm.).

Redcliffe District Orchid Society
AUTUMN: Thursday 26th-Saturday 28th April.

Rockhampton Orchid Society
AUTUMN: Friday 6th-Sunday 8th April. (9am-9pm Fri/Sat.9am-3pm Sun).

Sunshine Coast Orchid Society Inc
AUTUMN: Civic Centre, Caloundra. Thursday 19th-Saturday 21st April.

The Gold Coast Orchid Society Inc
AUTUMN: The Pines Shopping Centre, K.P. McGrath Drive, Elanora. Friday 20th-Saturday 21st April. (8.30am-5.30pm.).

Townsville District Orchid and Allied Plants Assn.
AUTUMN: Mothers Day Show. Old Victoria Bridge, Townsville. Friday 11th May 9am-9pm. Saturday 12th May 9am-5pm. Sunday 13th May 9am-4pm.

Tropical Queensland Orchid Council
WINTER: T.Q.O.C. Silver Jubilee Conference (Show included.). T.A.F.E. College, Eureka Street, Cairns. Friday 8th-Monday 11th June. (Queens Birthday Weekend.).

West Brisbane Orchid Society
AUTUMN: Mt. Coot-tha Auditorium, Friday 20th-Sunday 22nd April.

VICTORIA

Mornington Peninsula Orchid Society Inc
AUTUMN: Frankston High School, Towerhill Road, Frankston. Saturday 5th May-Sunday 6th May (Sat. 9am-6pm. Sunday 10am-5pm.).

SOUTH AUSTRALIA

The South Australian Orchidaceous Society Inc.
AUTUMN: Reception Centre, Cnr. South Road & August Street, Thebarton. Wednesday 16th May 8pm. (to be held in conjunction with monthly meeting.).

WESTERN AUSTRALIA

The Orchid Society of Western Australia
AUTUMN: Gosnells Civic Centre, Albany Hwy, Gosnells. Saturday 28th April 12pm-5pm. Sunday 29th April 9am-4pm.

NORTHERN TERRITORY

Litchfield Orchid Club
WINTER: NT. Orchid Spectacular. Darwin Convention Centre, Esplanade, Darwin. Saturday 2nd June 12pm-9pm, Sunday 3rd June 9am-4pm.

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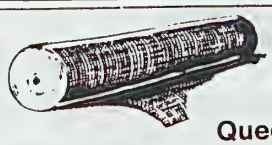

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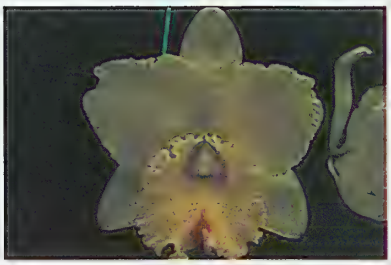

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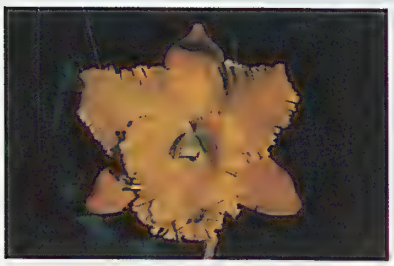

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Oncidium warmingii

UNUSUALS AND HARD-TO-FINDS! YORK'S ORCHID ADVENTURES

THE VENEZUELAN EPI. STAMFORDIANUM FLOWERS IN SPRING!

The showy yellow-with-red flowers on their long, generous sprays (up to 2') can be a striking addition to your line-up for the Spring Shows! Handsome, big-bulbed orchids producing fragrant flowers that last and last. Good, big, gutsy plants for your cool glasshouse at $25

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Can't tell you its species name but it's from Madagascar and it's a beauty. When it flowered, with its lush display of green/gold flowers, the inflorescence "must have been at least two foot long with over seventy flowers", says York. And the flowers lasted for a full three weeks! The plant is something like a Eulophia and a cool glasshouse suits it. A great "unusual" at.....$35

CALL IT COELIA OR BOTHRIOCHILUS BUT –

grow it and enjoy it! York has a few plants of the lovely **Bothriochilus macrostachys** from Honduras. It throws up a long stalk with a multi-flowered cluster of small, perfumed, crystalline pink flowers in Summer. Note that York also has a few divisions of his own plant of **Bothriochilus bellus** with few, bigger flowers, Yellow/white with rose. Intermediate to warm conditions for either species. Nice plants.....$25 Call it Coelia, call it Bothriochiilus but own one of these species.

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Oncidium warmingii: It scrambles, it clambers. The bulbs are long and skinny and the flowers aren't big but they're cute with thin red-striped sepals and eye-catching white lip. A Brazilian collectors' piece. Listed at $35. See photograph at top right. Nice plants.....$30

Onc. brachyandrum: Odd Honduras terrestrial! Collectors' piece; Listed at $25. Special.....$20

Gomesa recurva

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OUR COVER

Dendrobium kingianum 'Magenta Fire' owned by Mark and Allison Webb – a good example of Ken Russell's line bred cross #106. See story on page 4.

WHERE PARENTAGE COUNTS

A (trigo Royale x Angelica) seedling: photo 4th May, 1990.

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Delightful Dendro
The Australian H

by Mark A. Webb BSc, Orchid Publicatio

The first native orchid hybrid to be registered was *Dendrobium* Ellen in 1928. This hybrid between *Dendrobium kingianum* and *Dendrobium tetragonum* has been remade many times since then and now there are many, much improved versions of this hybrid, but more on that later. The improvements in modern hybrids have been brought about by using carefully selected parents, many of which have been line bred.

Line breeding of species has given us plants with improved colour, increased flower size and number of flowers to the raceme. Line breeding programs have been operating in different species for a number of years. Ken Russell of Dungog, NSW has been selectively breeding *Dendrobium kingianum*, *D. bigibbum* and *Sarcochilus hartmannii* for many years. The other major line breeder of *D. kingianum* that I know personally is Ted Gregory of Tamborine Mountain, Qld. The progeny of these programs are far superior to any wild collected plants. They are robust growers which are quick to flower, often from very small seedlings. The most interesting aspect of this breeding is the increased availability of once rare colour forms such as the 'red' *D. kingianum*. A good example is Ken Russell's *D. kingianum* #106, a cross between two bush-collected plants, *D. kingianum* 'Russell's Red' x *D. kingianum* 'Gloucester Red'. Other examples of line breeding within Australasian *Dendrobium* species are *D. tetragonum* by Sid Batchelor and the section *Latouria* Dendrobiums by Phil Spence.

Using these improved parents the hybridists of today are remaking the older crosses and turning up some superb hybrids. Walter Upton at the 8th Australian Orchid Conference in Townsville in 1981 proposed a way to group our Australian hybrids using their floral shape.

The three categories are:
– *D. tetragonum* shape

Top left: *Dendrobium tetragonum* breed and grown by Sid Batchelor. Another example of what line breeding the species can achieve. Left: *Dendrobium* Ellen #224 is an example of the modern *D.* Ellens. It is large and exceptionally colourful.

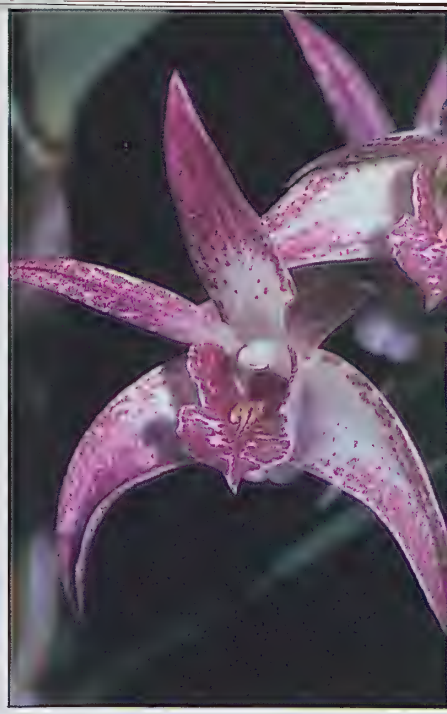
biums–
ybrids

– *D. kingianum* shape
– *D. falcorostrum/D. speciosum/D. jonesii* shape.

As he stated in his recently published work '*Dendrobium* Orchids of Australia'. "Now five years later, I see no reason to change. If anything, this situation is being confirmed." I fully agree with this very sensible method of grouping Australian hybrids and have used it herein.

Probably the most popular of the *D. tetragonum* shaped hybrids is *D.* Ellen. Examples of modern breeding are *D.* Ellen #224 by Ken Russell and *D.* Ellens 'Deloraine' and 'Boobyalla' by Sid Batchelor. Larger, more colourful hybrids than the original *D.* Ellen they have *D. tetragonum* var. *giganteum* as one of their parents, thus unlike the original *D.* Ellen, will flower many times throughout the year. *D.* Aussie Treat (*D.* Ellen x *D.* Peter), *D.* Aussie Victory (*D.* Ellen x *D.* Sunglow) and the as yet unnamed hybrid between *D.* Ellen and *D.* Ku-Ring-Gai are all beautiful examples of what we can expect from this hybrid as a parent. Sid Batchelor has taken this exceptional hybrid further with a sibling cross between *D.* Ellen 'Deloraine' and *D.* Ellen 'Boobyalla' producing some phenomenal progeny. Two of these offspring have been exceptional, *D.* Ellen 'Breona' and *D.* Ellen 'Lenna' are clones well worth looking out for being larger and more intensely coloured than their parents. A further cross of *D.* Ellen 'Lenna' to *D.* Ellen 'Boobyalla' is currently in flask. There is one feature of the modern *D.* Ellen that is extremely dominant in hybridising, that is the pink/red labellum. This feature has come from the *D. tetragonum* used in their parentage. Luckily hybridists such as Sid are fully aware of this characteristic and are taking steps to prevent it from dominating our Australian *Dendrobium* hybrids.

Another interesting line of breeding within the *D. tetragonum* shaped hybrids is that of *D.* Star of Gold. An exceptional clone, *D.* Star of Gold 'Bathurst' has been used extensively by Sid Batchelor to produce some outstanding hybrids. *D.* Aussie Bonanza x *D.* Star of Gold is a most impressive hybrid. So to is Bernie Flechter's first flowering seedling of *D.* Tarean (*D.* Star of Gold x *D.* Hilda Poxon). The plant was only 100mm tall, but produced three erect inflorescences with a total of 21 highly scented, wide open flowers. I do not believe I have every seen a more appealing *Dendrobium* hybrid. It is a pity that we don't see such plants readily available in the chain stores instead of bush collected *D. kingianum*.



Top right: *Dendrobium* Aussie Treat certainly shows the influence of *D.* Ellen in its parentage, with *D.* Peter filling in the segments. Right: *Dendrobium* Aussie Victory (*D.* Sunglow x *D.* Ellen #224). The picture says it all.

Dendrobium hybrids of the *D. kingianum* shape have been around for a long time. The first man made hybrid using indigenous Australian parents was *D.* Specio-kingianum (a synonym of *D. X delicatum*) produced by Sir Trevor Lawrence in 1892. Probably the two oldest and most popular hybrids of this shape hybrids would be *D. X delicatum* (*D. speciosum* x *D. kingianum*) and *D.* Bardo Rose (*D. falcorostrum* x *D. kingianum*). Both are easy to grow and flower in the temperate regions of Australia. Some work has been done to remake these tried and tested hybrids using better parents, producing some interesting results. Eric Webeck of Gordon, NSW is famous around Sydney for his specimen plants of *D. kingianum, D.* Bardo Rose and *D. X delicatum*, some of which measure 2 metres in diameter. The latest crosses flowered by Eric are much improved on the original hybrids with larger, more colourful flowers on racemes better engineered to withstand the weight of the large, heavily substanced flowers. There are a number of Australian hybrids with the *D. kingianum* shape worth mentioning, including *D.* Peach Glow, *D.* Hastings, *D.* Golden Fleck, *D.* Yondi Brolga (*D. kingianum* x *D.* Peach Glow) and *D.* Eureka x *D.* Aussie Mist to name a few.

The hybrids with the *D. falcorostrum*, *D. speciosum* and *D. jonesii* shape are intermediate between the other two shape groups seen in our cool growing hybrids. *D.* Andrew Persson, *D.* Peter, *D.* Sunglow and *D.* Emma are all examples of this type of breeding. These hybrids generally have a better habit of inflorescence with more flowers per raceme when compared with either the *D. tetragonum* or *D. kingianum* shaped hybrids.

A novel line of breeding within Australian *Dendrobium* species is that of the 'terete' Dendrobiums. These interesting hybrids were first made popular by Noel Jupp in the early 1970's and later by Bill Skillicorn and Walter Upton in the 1980's. They are generally pendulous in habit and some flower both in autumn and in spring. A good example of this type of hybrid is *D.* Rosemary Jupp.

One much overlooked group of

Top left: Two outstanding hybrids from the breeding of Sid Batchelor, *Dendrobium* Aussie Bonanza 'Tammy' x *D.* Star of Gold 'Bathurst'. Left: *Dendrobium* Tarean (*D.* Star of Gold 'Bathurst' x *D.* Hilda Poxon 'Mt Ida'). Top right: *Dendrobium* Eureka x *D.* Aussie Mist - bred and owned by Phil Spence of Orchid Productions, Sydney. Right: Another intriguing hybrid from Sid Batchelor, *Dendrobium* Yondi Brolga 'Bindi'.

Dendrobiums in the temperate regions of Australia is the section *Spatulata* or the 'Antelope' Dendrobiums. Extremely colourful and for the most part vegetatively very large (their major drawback) these warm growing species and hybrids make a definite impact on any show bench. Unfortunately too few growers realise just how many of these, sometimes complex, *Dendrobium* hybrids are Australasian in their parentage, and thus may be benched at Australasian Native Orchid Society (ANOS) shows. There are currently in the order of 2,500 Australasian *Dendrobium* hybrids and well over half of these have section *Spatulata* Dendrobiums in their ancestry. A few of the Australian *Dendrobium* species of interest within this section are: - *D. canaliculatum*, *D. trilamellatum*, *D. discolor* and *D. johannis*. One very colourful hybrid is *D.* Gloucester Sands (*D. discolor* x *D. canaliculatum*), originally registered by K.A. MacPherson in 1963. The *D. canaliculatum* in its parentage has reduced the pseudobulb length of *D.*

Gloucester Sands when compared to its somewhat tall other parent *D. discolor*.

Other 'Antelope' hybrids include:
– *D.* Lowana Nioka (*D. canaliculatum* x *D. antennatum*), a pale to lime green flowered hybrid with typical *D. antennatum* purple markings on the labellum.
– *D.* Verninha (*D. antennatum* x *D. discolor*), typically a large plant with a long inflorescence of green/brown flowers half way between the two parents in shape and size.
– *D.* Rachelle Simpson (*D. canaliculatum* x *D. johannis*), similar to *D.* Gloucester Sands, but slightly smaller, browner flowers.

Another interesting group of *Dendrobium* hybrids are those between section *Spatulata* and section *Phalaenanthe*. Probably the most commonly grown hybrid of this group is *D. X superbiens* (*D. bigibbum* x *D. discolor*), which when flowered to perfection is without a doubt the most impressive natural *Dendrobium* hybrid found in Australia. Another hybrid which has recently become popular around Sydney is *D.* David Baver (*D. johannis* x *D. bigibbum*), an

Top and centre: Two interesting Australian 'Antelope' species, the spring flowering *Dendrobium trilamellatum* 'Monsoon' and its autumn flowering relative *Dendrobium johannis* 'Old Jamaica' both plants owned by Michael Harrison, Macquarie Native Orchids, Wilberforce. Right: *Dendrobium* Gloucester Sands - a very colourful clone from Ken Russell, Orchid Glenn Nursery, Dungog.

autumn flowering, intense plum coloured hybrid. Good clones of which draw the eye on the show bench.

Hybridising warm growing 'Antelope' with cool growing Australian Dendrobiums has produced some unusual hybrids. Probably the greatest advances being made at the moment in Australian *Dendrobium* hybridising are being carried out using a mixture of warm and cool growing species and hybrids. An unnamed hybrid that shows great potential is *D. trilamellatum* x *D. agrostophyllum*. Bright yellow flowers which are half way between the parents in both size and shape. Other outstanding hybrids that come to mind are *D.* Peewee (*D. bigibbum* x *D. tetragonum*) and some of its progeny such as *D.* Rosella (*D.* Peewee x *D. tetragonum*) , *D.* Lorikeet (*D.* Peewee x *D.* Ellen) and the *Dendrobium* hybrid of the 1980's, *D.* Elegant Heart (*D.* Peewee x *D. speciosum*).

In recent years there has been a dramatic increase in the interest shown towards Australasian orchids by both orchid growers and the general public. As a consequence of this the time was judged right to hold the first Australasian Native Orchid Conference and Show. The conference will be an interesting three days of lectures and seminars on such varied topics as: *Dendrobium* hybridisation, Orchids of New Guinea, *Dendrobium* section *Latouria* hybrids, Terrestrial Orchids - Culture & Hybridisation, Line Breeding of Epiphytic Orchids, Orchids of the Pacific to list a few.

The Conference and Show will be held at the University of Wollongong, Wollongong, NSW from the 27th - 30th September 1990. Aside from the lectures and show there will also be an orchid photographic competition, art show and commercial sales as well as the usual plant sales area.

Further information about all aspects of the conference and show may be obtained from Mr Ron Wheeldon, the Conference Chairperson - 227 Mt Keira Road, Mt. Keira 2500. Ph (042) 28 7851 or from Margaret Prendergast, ITC Uniadvice Limited, P.O. Box 1144, Wollongong, NSW 2500. Ph. (042) 27 0076.

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Top: An unnamed hybrid between *Dendrobium trilamellatum* and *D. agrostophyllum*. Left: *Dendrobium X superbiens* 'Wildfire'- A particularly dark clone owned by Michael Harrison of Macquarie Native Orchids, Wilberforce.

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*Kingsley Dixon and Margaret Collins

Western Australia has 238 species of endangered plant life. Amongst these are over 30 species of terrestrial orchids. Many of these orchids are restricted to roadside populations and in some cases to less than a few dozen plants. It is expected that if environmental pressures continue then most of these plants could be extinct by the end of the decade.

In a bid to preserve these species researchers at Kings Park and Botanic Garden in Perth have been awarded a $17,000 grant from the federal government under the recently announced Endangered Species Program. Initially aimed at just six of those in Western Australia most critically threatened the program is the first federal government program specifically targeting propagation of rare terrestrial orchids. The study species are:

Caladenia cristata
Caladenia sp 'Northampton'
Diuris sp. 'Kwinana'
Drakaea jeanensis
Drakaea sp 'South West'
Thelymitra stellata

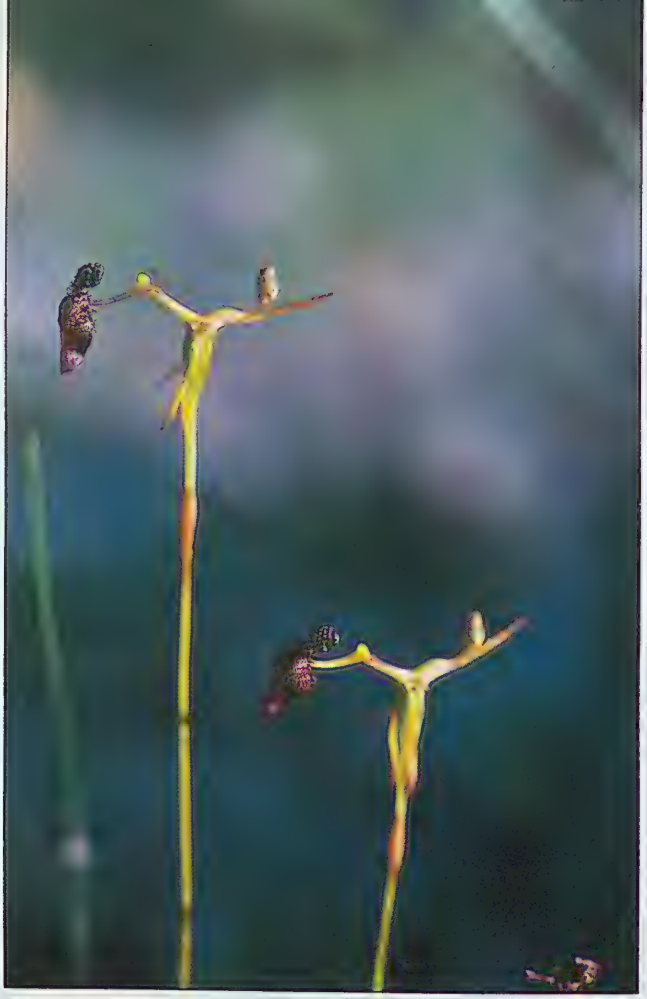
Some of these species will make excellent horticultural subjects once mass propagation procedures are developed.

Above: *Catadenia* sp. 'Northampton'. top: the crested spider orchid (*Caladenia cristata*).– *Photo: A. Brown.*

Wherever possible propagation experiments are being conducted on common related species to minimise collection of propagation material from the rare populations.

The study proposes firstly to apply recent advances in seed and tissue culture of terrestrial orchids developed at Kings Park to the study species. The new developments in tissue culture of terrestrial orchids will provide the first reliable and non destructive method for cloning a terrestrial orchid from known adult plants. With low number of plants remaining in native stands it is now feasible to represent in vitro each genotype found in the parent population. Seed propagation is also being developed for all the species in the study using both asymbiotic and symbiotic ('fungus assisted') methods.

An important part of the study



program is the development of low temperature or cryo-storage of orchid seed. Essentially this will enable very long term (20+ years) storage of orchid seed under controlled conditions at temperatures below minus 40°C. Exacting experiments are underway to assess orchid seed viability to ensure that the method of cryo-storage used gives optimal results. All orchid growers and especially the seed bank of the Australian Orchid Foundation will benefit directly from this work. Techniques for cryo-storage of seed will assist conservation of very rare species where there is limited seed or species awaiting development of a propagation procedure.

Although the program to propagate, preserve and cultivate these six species has only just started it is likely that this dedicated research will impact on the preservation of many other rare Australian terrestrial orchids.

Current Research in Kings Park and Botanic Garden

Since 1984 Kings Park and Botanic Garden has developed programs aimed at propagation and display (Dixon and Dixon, 1985, 1987) of rare Western Australian plant species and micropropagation of Australian terrestrial orchids (Dixon, 1987a, 1987b; Ramsay et al., 1986, 1987; Nichol et al., 1988). To date six rare orchid taxa

Above: A hammer orchid (*Drakaea jeanensis*). top: *Drakaea* sp. 'South west'.– *Photo: A. Brown.*

have been propagated and grown in pots to near flowering size. New methods have been developed for the micropropagation of a number of genera and a recent discovery of the involvement of bacteria as symbionts in orchid growth (Wilkinson et al., 1989) has led to improved methods for orchid seed germination and plant establishment.

The establishment in Kings Park of a rare and endangered plant garden in association with the Display Glasshouses, which are open to the public, will provide a valuable venue for the display of orchid plants produced as a result of this program. This was recognised by the presentation of the Australian Heritage Award, 1988 Certificate of Merit for Nature Conservation to Kings Park and Botanic Garden.

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*Senior Research Botanist, Kings Park and Botanic Garden, West Perth, 6005, Western Australia

Above: *Diuris* sp. 'Kwinana'. Top: *Thelymitra stellata.* – *Photo: A. Brown.*

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Going Sightseeing — Finding a Rarity

Jim Cootes

During a recent visit to the Philippines (February-March 1990), my thirteenth trip to that country, we went on a journey to the eighth wonder of the world, the famed rice terraces of Banaue, in the Ifugao Province, on the largest Philippine island of Luzon.

Ifugao Province is approximately 8 hours by bus from Manila, the Philippine captial city. This province is situated in the Central Cordillera Mountain range which runs down the centre of Northern Luzon. The elevation in this area is around 5,000 feet.

On the second day of our stay in Banaue we decided we would visit a small village about 2 hours from Banaue. The journey was along a very narrow and bumpy road, if that is the right word for it, only to learn on arrival at an intersection, that the village was located another 6 kilometres away by foot.

In the first instant I was quite annoyed that the boy who suggested the trip to the village had neglected to tell us of the extra walk. We had spent the previous week in a neighbouring province walking every where we had to go, and to be honest I wasn't sure if my legs were up to another 12 kilometre hike, or 2 hours each way. My head said no but, thankfully, my orchid growing heart said to take the walk.

Upon reaching the half way mark, at the top of a mountain, I looked at the path going down to the village and all my thoughts were about the walk back — all uphill.

Again my heart prevailed, because I spoke to a tourist who told me the

Top: *Vanda Javieriae* Tiu. 'Orchidglen' CBM/QOS AOC Above: *Dendrobium amethystoglossum* Rihb. f.

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food available in the village was excellent and well worth the walk.

As always, I was looking in each tree we passed hoping to see orchids growing in their natural habitat so I could get slides which are useful when requested to give lectures.

Along the track we frequently saw the purple terrestrial *Spathoglottis plicata* Bl. several unidentified oberonias growing in the trees plus several vandaceous species. *Dendrobium amethystoglossum* Rchb. f. was fairly common with its lovely white flowers and amethyst labellum. I noticed several other species of orchids in the trees but they were too high to be able to identify.

About a third of the way down the track I noticed some vandas growing in a tree very close to the trail (the first time I have seen vandas growing wild) so we stopped while I got the camera out and took some pictures and when I saw one of the vandas in flower I was so excited because I had found the recently (1984) described *Vanda javireiae* Tiu.

This orchid grows to about 18 inches tall, the leaves are up to 6 inches long and have a reddish tinge about them. It is a strap leaved species. The flowers are up to 3 inches in diameter, pure white with a little brown in the centre. There are up to 8 flowers on the inflorescence and more than one raceme per plant is common on mature specimens.

I was very happy when I saw one of the plants had a seed pod, that looked well advanced, so I requested one of my friends to climb the tree to get the seed pod.

It was interesting to note that *Vanda javieriae* grows in a quite shaded habitat but always received some direct sun at some time during the day.

The previous known habitat of *Vanda javieriae* is about 60 kilometres south, as the crow flies, and it only grows on the peaks of mountains.

After seeing the vandas, I was very vigilant looking for more plants and only saw it growing on two more trees but there was always 10-15 plants per tree.

Vanda javieriae is still quite rare so it is a wonderful feeling to go sightseeing and find such a rarity. ■

Vanda javieriae Tiu. growing in its natural habitat in the Cordillera Mountains of the Philippines.

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A PERSONAL TRIBUTE

The Reverend Dr. Ron Collins

by Bill Lavarack

Late last year Ron Collins passed away at his Atherton home. To me and his other numerous friends it was the end of an era. Ron was one of the best known of local identities through the church and through his association with plant societies and was a North Queenslander to the laces of his T boots.

I first met Ron in 1966 when my PhD supervisor Dr Trevor Clifford chanced to sit next to Ron on a flight to Cairns. As a result of this meeting Dr Clifford suggested I contact Ron for help in obtaining specimens for my research and soon after I stayed with the Collins and then accompanied Ron and Bruce Gray on a trip to the McIlwraith Range. This was the start of 2 friendships which I will always value. Ron and Bruce were inseparable and formed a formidable partnership — both excellent bushmen with a deep love of the rugged ranges of north Queensland. Starting from a very basic knowledge — this was before the days of Dockrill's *"Australian Indigenous Orchids"* — they set out to learn all there was to know about the orchids of their corner of the world. In the course of the next quarter of a century they were responsible for many new and interesting records.

Ron supported many of my expeditions to Cape York Peninsula, providing the security of a second vehicle in areas where travel in a single vehicle could be dangerous. I was not the only one to use Ron's voluntary services in this way. Several botanists and zoologists from Australia and beyond experienced his campfire stories and bush cooking in the wilds of Cape York Peninsula. Ron was involved in the discovery of many new species and is commerated in *Cadetia collinsii*. I only wish it could have been the elusive slipper orchid that was always just over the next hill.

A true bushman, never more happy than in camp beside a Cape York stream, he also had a tremendous love of books and good writing. His private library of books on orchids and north Queensland history was always one of the delights of a visit to Ron's place. This studious side of his life culminated in the award of a Doctorate of Divinity, although few people used the title "Doctor" in relation to Ron.

Ron Collins where he loved to be — in the bush. Here on top of Mt. Bartle with a plant of *Rhodendron lochae*.

It would be easy to say of Ron Collins that his passion was orchids, but somehow I think the orchids were often an excuse to travel to fascinating places and spend time with interesting people. I never tired of hearing his tales of his visit to Colombia for a World Orchid Conference. In these stories — he was a born raconteur — the people figure much more prominently than the plants. The stories that Ron told over a cuppa! If only he had written them down as we all begged him to. Stories that told of the original settlers of the north. Ron was the youngest of a family of 9 and his parents were on Kirrima Station in the mountains behind Cardwell in the very early days. His mother remembered meeting Carl Lumholtz the famous naturalist and author as a girl.

Ron Collins (right) with friends camped on the Rocky River after a hard days hiking.

Ron's stories of the rainforest Aboriginals who lived near Kirrima when he was a boy were fascinating and not a little sad.

Ron grew up in the north Queensland bush and had its spirit deeply etched in his character. So much so that when sent to boarding school at Southport, he ran away and actually made it to Gympie before he was caught! This was just about the only thing he did run away from in his life — he was a man of strong beliefs and always prepared to defend them.

Ron served as a Bush Brother, then in England for 2 years after the war, then successively as Rector at Proserpine, Home Hill, Mareeba and Mackay, then in semi-retirement at Atherton. Often it seemed that everyone in the north had been christened or married by him. I count myself lucky to have been one of these — Ron officiated at my wedding in 1969. A friend to all, a dedicated Christian, Ron was always available to help people in distress.

Good clergyman that he was, I can't help but feel that Ron Collin's private cathedral was the gallery forests of the northern streams and it is in this context with a congregation of orioles and kingfishers that I will remember him.

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Nostalgic Miscellany

S.J. Waldie

It was a combination of events. Delivery of the Australian Orchid Review, some wet days, and reading parts of The Sunday Mail Nostalgia Book by Neil Groom. What better excuses for looking back into the past and what better subject than The Orchid Society of New South Wales?

There were two notes sent out by T.H. James, the first Secretary of O.S.N.S.W. sometime in 1936. The first was a circular sent out with the first issue of The Australian Orchid Review as follows:

"Dear Sir or Madam,

I am forwarding herewith one copy of the first issue of the Australian Orchid Review in which it is hoped that you, as a Member of the Society, will be sufficiently interested to purchase. Should you decide to do so kindly remit 1/6 in stamps to the undersigned.

As the success of this Review (a quarterly issue) depends on the cooperation of all interested the Committee would appreciate your help in this matter by becoming a regular subscriber and inducing others to do likewise.

The Committee would also be glad to receive from you articles for publication in the Review dealing with any matter relating to Orchids specially regarding your particular successes or failures or relating to the conditions of your own district."

Just imagine sending out gratis copies of a new journal these days then asking the recipient to send along payment!

The next item was a notice of the February 1936 meeting:

"Dear Sir or Madam,

The next meeting of The Orchid Society of New South Wales will be held on Thursday 27th February at Room 507, Phillip House, Phillip Street, at 8 pm.

The principal business will be an address by our President, Judge Markell, concerning his recent trip to Java.

Mr Cooper, of Sanders & Co., England, will again be present and will reply to Members' questions.

The January Meeting was almost entirely taken up by questions from Members and Mr Cooper's replies thereto. A Summary of those questions and replies is being prepared and will be forwarded to Members in due course."

As if this wasn't enough to whet the appetite, on looking at some old show schedules, on P.4 of the 1964 Spring Festival Schedule there was a good resume of the Society's history to then. It makes interesting reading and I repeat it now with due acknowledgements to the author of same.

"The Orchid Society of N.S.W. was formed in August, 1934, the first President being His Honour, Judge H.F. Markell and the first Hon. Secretary, T.H. James. For some three years prior to this, a few keen growers had held regular informal meetings without the actual formation of a Society, just getting together to discuss orchids and share their experiences.

At first the meetings of the new Society were held at the home of the Hon. Secretary, but as the membership increased larger premises had to be found. By 1936, when the first issue of the Australian Orchid Review appeared, there had been several changes of venue and at that time with a membership of about one hundred, the Society was meeting at Phillip House, Phillip Street.

Several more moves were made before going to the Y.W.C.A. Hall where the Society has now met since 1947.

The second Annual Meeting was held at Vere Mathews Cafe, Hunter Street, on 26th August, 1936. A small show accompanied the meeting and for the first time admission was charged for the public to attend. Following this, Spring Shows were held each year at Vere Mathews in 1937, at Farmers' Blaxland Galleries in 1938 and 1939, and at David Jones, George Street, in 1940. Then followed a break of four years during World War II.

The first Show after the war break was at Beard Watson's, in 1945. Then followed David Jones, Elizabeth Street, in 1946, the County Council Showroom, 1947, and the Y.W.C.A. Hall, in 1948. The 1947 Show at the County Council was the first Competitive Show.

The following year saw the move to the Sydney Town Hall for the first Orchid Festival, an event which has been repeated each September till the present time. The District Exhibit Competition also began in 1949. During the intervening years these Exhibits have developed into the elaborate and artistic displays we have seen at recent Festivals. In addition, we now have a number of smaller affiliated Society Exhibits, and for the first time, in 1963, a Native Orchids Section occupying the whole stage and including a number of displays of natives by Affiliated Societies.

The membership of the Orchid Society of New South Wales Ltd., with Mr. Graeme Banks the current President, is now in the vicinity of 800, including members in every State in Australia and many overseas countries. Now thirty years old, the Society is prosperous and very active and promises to serve the orchid growers of the state for many years to come."

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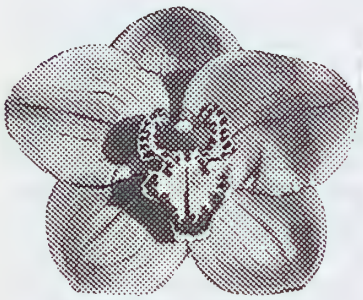

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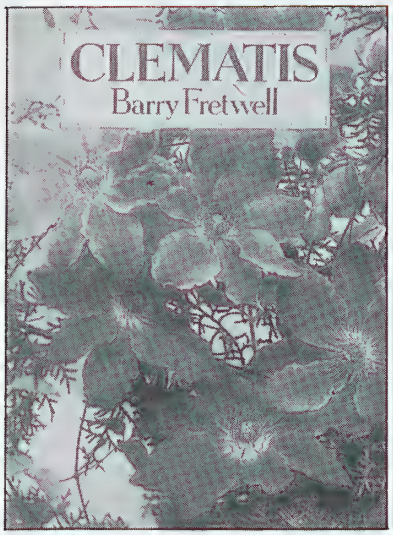

Songs of the Forest

Edwin Wilson
Publishers Hale and Iremonger 1990
95pp, Soft Cover: RRP$12.95

This is a delightful book of poems consisting of many depicting orchids found in the rain forests and coastal areas of northern New South Wales.

Edwin Wilson's childhood memories of the area inspired him to put pen to paper — thus producing this collection of poems.

The poems were selected from two previous books by the author, "Banyan" and "The Dragon" and a number of new poems have been added.

This book is something different, recommended to people who enjoy reading about the many facets of Native Orchids and flora of the Australian east coast.

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Clematis

Barry Fretwell
Publishers Collins 1989
160pp, Hardcover: RRP $35.00

Barry Fretwell is an English nurseryman with a passion for the genus *Clematis*.

He describes and illustrates in detail the cultivation and propagation of the plant, plus pests and diseases.

The book is divided into two sections: 1. Large flowered hybrids. 2. Smaller flowered hybrids. Not all plants are illustrated, but those that are show the brilliance and differences in morphology of *Clematis* blooms.

A book recommended for those who have an area of garden which needs covering by a beautiful plant.

As many *Clematis* are deciduous, they are ideal for orchid growers who want to shade their plants in the Summer and allow full sunlight during Winter.

The beautiful *Phaius* or 'Swamp Orchid'. An illustration from "Songs of the Forest."

Flowers by Colour

General Editor Mary Moody
Horticultural consultants Kenneth A. Beckett, VMM and Ruth Rogers Claysen.
Publishers Weldon Russell 1990
305pp, Hardcover: RRP $39.95

This beautifully illustrated book describes trees, shrubs, bulbs, climbers, etc. in groups according to the colour of the flower produced, instead of by growth habit. Over 1,000 plants are mentioned.

Orange–Red, Pink, Purple–Blue, White and Yellow flowered plants are grouped together.

The book also gives the botanical names of plants plus their common and family names, country of origin, flowering times, climatic zones and dimension.

So if your planning to do some landscaping, this is the ideal book to guide you in selecting the colour combination to create a vividly coloured garden.

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Outstanding Autumn Show

The Townsville Orchid Society Inc held their Annual Autumn Show on the 30th, 31st March and 1st April and was staged in the Townsville City Administration Building. Growers from Ingham, Charters Towers and Giru contributed along with members of the Townsville Orchid Society. Considering that North Queensland has just been through one of its longest and hottest summers followed by 28 inches of rain in March with 15 inches falling on the weekend prior to the show the quality of the exhibits was outstanding although the numbers were slightly down on last year.

Being Autumn the flowers were mostly of the *Dendrobium* type (Phalaenanthe and Intermediate) however there was still a good quantity of *Cattleya, Vanda* and other genera with even a few catasetums on display. The displays were of a very high quality and presented the judge with a very difficult decision. Among the displays were tables of Floral Art arrangements which did the ladies proud.

The orchid judges also found the quality to be outstanding and took over 2 hours to come to a decision with regard to sectional champions and then had further difficulty in selecting the Grand Champion and Reserve Champion.

The Grand Champion was a Phalaenanthe type *Dendrobium* being *D.* Sister Anne-Maree x *D.* Autumn Show grown by Warren & Clara Sewell. The plant had 2 sprays of near perfect flowers of a white background with splashes of pink on the sepals and petals. A very nice tri-color. The winners had further reason for

Grand Champion Orchid at the Townsville Orchid Society Annual Autumn Show. *Dendrobium* Sister Ann-Mareex x *Dendrobium* Autumn Show 'Hayley'. H.C.C./Q.O.S. Owned by Clara and Warren Sewell and bred by Ray Nicholls. The name applied for this cross is *Dendrobium* Elva-Ann.

celebration as this orchid was bred by local hybridizer Ray Nicholls who is recognised as one of Australia's most successful *Dendrobium* hybridizers, also this orchid received an award, earning 78 points, which is a high H.C.C. and is waiting to be named.

The Reserve Champion was *Vanda* Gordon Dillon 'Blue' grown by Alan Hughes of Ingham. This flower was also of a very high quality and a very beautiful colour. Other results were: Intermediate *Dendrobium* Pearly Snow, Bob & Lorraine Clarke. *Cattleya* Mem. Crispin Rosales 'No 2'. Greg Kelly. Oncidium and/or Alliance *Miltonia* Anne Warne, Wal & Jean Nicholson. Species *Catasetum expansum*, Wal & Jean Nicholson. Best Mini Display, Bob & Lorraine Clarke. Best Group Display, Warren & Clara Sewell & Ray Nicholls. Best Commercial Display, Keiths Nursery.

The Townsville Orchid Society's next show will be the Annual Spring Show to be held on the 14th, 15th & 16th September 1990.

Barry Cameron
Publicity Officer

Winning display at the Townsville Orchid Society Show by Clara and Warren Sewell and Ray Nicholls.

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Vic's Paphiopedilums are his pride and joy, and their home is the small heated glasshouse.

Glasshouse Visits

by Jack Silva

I'm sure most Orchid Clubs arrange Glasshouse Visits for their members. It's one of the best ways I know of helping newer — and older — growers to gather new ideas to help them with their hobby, and they are great social occasions.

Melbourne Eastern Orchid Society has a first class G.V.O. (Glasshouse Visit Organizer) in Edna House. Give her half a sniff of a grower willing to host a visit, and Edna will have something organized. Some months we visit commercial establishments, but more often our hosts are hobbyists of all sizes and descriptions.

One of our visits last year was to Clive and Agi Halls' Mt. Beenak Nursery at Three Bridges, way out on the Powelltown road, and not far from Warburton. Clive always produces a wonderful display of mini cymbids, and his penduous *Cym devonianum* hybrids are always greatly admired. Of great interest to our members were his odontoglossums, which made a fine display, largely attributable to the ideal conditions in which they are grown, in their own special house. We had hired a Self-drive Bus, and co-opted one of our Committee Members, Brian Nitz, as driver, to get us to Mt. Beenak. This was a great arrangement, as we were able to prevail upon Brian to stop occasionally so members could buy produce from local farms. Brian's wife, Pat, proved to be a great bargainer for the group on such occasions. The biggest problem was to sort out who owned the various stacks of apples, carrots and orchids when we returned to Melbourne.

Another trip took us to Bendigo to inspect their Spring Orchid Show, and we were royally entertained by the locals. A feature of their Show was the excellent display of Australian Natives, many of which had originated from the Mandurang Orchid Nursery, where we later drove for a

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B.B.Q. lunch. No one was going to buy anything there, they said!!! Well, you know what orchid growers are. I'll bet we left a thousand dollars behind, at least, because we sure took home a bus load of plants.

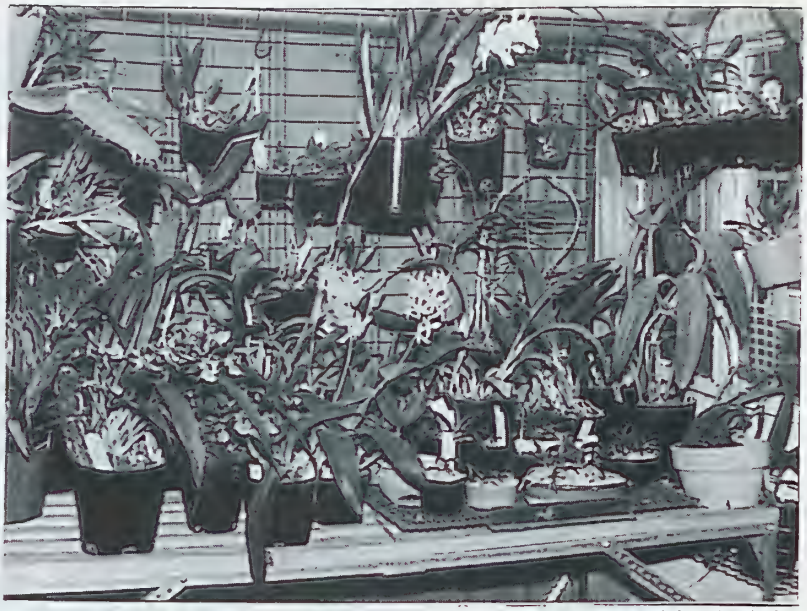
A trip we always enjoy is to Dave and Pat Wickham's home. Dave and Pat are very keen growers, and there isn't much of their yard left for garden or lawn. Dave is always keen to flog off a few good plants, and Pat is a first rate morning tea provider. Their miniature cymbidiums are always very well grown, and their stand at our Shows is always one of the largest and most colourful. This year Dave tells me he's going to "knock off" some of the commercial growers at our shows, and I believe him. He's really a ball of energy after his successful hip operation last year.

Our first visit this year was to Terry Poulton's establishment. Terry assures me he's trying to keep his orchid growing down to hobby size, but I don't think he's succeeding very well. The family swimming pool has recently been bulldozed, and yet another Orchid House is going to take its place. Terry is a great grower of cymbidiums, particularly standards, and produces spikes on them like telephone poles. Other kinds of orchids are against his

Top: Vic and Elaine Pearce's large heated glasshouse. There isn't room for much more to be filled in here. Above: Elaine's clothes have to compete for space with the softcane *dendrobiums*.

religion. He once had a softcane dendrobium with hundreds of buds, but they all turned into keikis. He swore off them after that, which was a pity, as he was going to give us a Cultural Talk on the growing of softcanes until this happened. Terry always produces much-admired Valerie Browns, which are always just ready for our Shows, and they were a feature of his prize-winning stand at last year's Spring Show. This year he cultivated a fair amount of *Glomerella* among his plants also, when his sprinkler system apparently duplicated Sydney's summer climate a bit too closely. So we learnt a lot about watering out at Terry's place.

Early this year we kept hearing the question, "How do Vic and Elaine Pearce produce so many different varieties of orchids, and flower them so beautifully? Every month they have many different plants on the benches at our meetings." So Edna House approached the Pearces, and arranged what turned out to be one of our most successful Glasshouse Visits, both in the number of people attending and the things we learnt. Most of us try to grow too many varieties of orchids together, and some of them are sure to fail due to unsuitable conditions. Not so with Vic and Elaine. They have roofed over their whole backyard, and have provided small separate growing areas for each different type of orchid. This enables them to provide a whole range of different environments, and so their plants are thriving. Everything is neat and tidy, and in good repair. No wonder they produce such lovely plants! The only piece of grass in the backyard is under the clothesline, which barely has room to turn, and believe it or not, two thirds of the Hill's Hoist is devoted to Softcane Dendrobiums hanging in the sunshine. Vic doesn't want to get into trouble, so he swears these plants belong to Elaine. I still think it's funny how often he comes forward at our meetings to collect a prize for a beautifully flowered softcane!!!



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The Orchid Society of NSW Autumn Show

The Orchid Society of NSW Ltd, held their Autumn Show in conjunction with The Royal Easter Show in Sydney.

The show was open for a period of 12 days. During this time two judging sessions took place, the first on the second day of the show and the second session on Good Friday on day eight of the show.

The display covered an area of 60 m².

The Grand Champion and champion at both judgings were as follows:

First Session

Grand Champion *Vanda* Judy Miyanato x *V* J. Yamawoto — A. Leece

Champion *Cattleya L.C.* Little Misty — D. Massey

Champion *Paphiopedilum P.* Maudiae 'The Queen' — D. & G. Banks

Champion *Phalaenopsis P.* Gladys Read x *P.* Lizza Henderson — J. & M. Gulbis

Champion *Oncidium* Allance *Odem* Crowborough 'Spice Island' — P. Newton

Champion Other Orchid *Lycaste* Wyuna 'Pale Beauty' — F. Alcorn

Second Session

Grand Champion *Paphiopedilum sukhakulii* — W. Rhodes

Champion *Cattleya LC.* Little Susie — D. Massey

Champion *Paphiopedilum P. sukhakulii* — W. Rhodes

Champion *Phalaenopsis P.* Alice Gloria 'Cecil Park' — Cecil Park Orchids

Champion *Oncidium* Alliance *Odm* Tontor 'Joy' x *Odm* Jerome 'Rolinda' — W. Rhodes

Champion Other Orchid *Lycaste* Kodena 'Blush' — F. Alcorn

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Packaged tours to these wonderful Lodges in the P.N.G. country areas are available through the Cairns based Papua New Guinea Travel specialists, the New Guinea Adventure Centre.

Manager of this Office is Part-time P.N.G. Tour Leader, Suzanne Noakes who arranges weekly departures on tours ranging from 6 days to 10 days duration. Qantas and Air Niugini operate regular services into the PNG capital of Port Moresby from Sydney, Brisbane and Cairns. In addition, Air Niugini operate a Monday service direct from Cairns into Mt. Hagen, with convenient connections available into Ambua Lodge and the Sepik region.

If you'd like further information on travel to and within PNG, contact Suzanne Noakes, New Guinea Adventure Centre, 44B Aplin St., Cairns, 4870. Tel: (070) 510 622, Fax: (070) 521 127, Toll Free: 008 079 046.

Australian Orchid Foundation

PRACTICAL CONSERVATION WITH THE USE OF ORCHID SEED

The importation of orchid species is becoming more difficult and expensive because of various forms of legislation, and depredation of the natural habitat, and the awareness of many countries for the conservation of their natural heritage of their orchid species.

The question of conservation of the orchid species in Australia is very familiar to orchid enthusiasts, and while we have many successful species, that is, their habitat is wide spread, there are a number of species whose future is very fragile, because of the specific nature of the habitat in small pockets, or the safety of that habitat presently depending isolation and remoteness.

The A.O.F. Orchid Species Seed Bank was created because it was believed to be one of the more practical avenues of conservation and every effort should be explored that will encourage the commercial orchid nurseries to raise some orchid species from seed, and ideally, for that Nursery to promote their sales as "Nursery raised species".

Being practical, the commercial grower would be very interested in those species which may be termed 'very desirable' if that seed is available.

The main purpose of this preamble, is to emphasise that there is an urgent need for the seed of these desirable species to the amateur, as well as the commercial grower.

The AOF Orchid Species Seed Bank seeks your co-operation to encourage your friends to 'self' a few of these flowers as they come into flower. It is appreciated that the seed cannot be produced overnight. Many of the epiphytes will take 9 to 10 months to mature, and while many talk nonsense about conservation, here is a chance for you to do something really positive from the enormous number of very attractive species that have been imported into Australia in the past decades.

A number of Members of the AOF have been regularly supplying seed, both native and exotic, to the AOF Orchid Species Seed Bank to their credit, making a creditable good list of the seed available, and this segment of the Foundation is attracting more and more attention from overseas orchid enthusiasts which helps to make our efforts more encouraging.

It is the desire of the Foundation to enlarge this list of seed being available, hence this appeal to YOU personally. Dry seed, rather than green pods is being sought to enlarge the number of species available.

Let me repeat, that while seed from you will be most acceptable, it will be more wonderful if you can encourage your friends to join our contribution of PRACTICAL CONSERVATION of the orchid species.

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The Sydney Orchid Society Annual Show

The Sydney Orchid Society, formed in 1945, and the second oldest in NSW is offering a special prize of $200 for the Grand Champion orchid at their annual Show.

The Show will be held in the Strathfield Plaza Shopping Complex from 9 a.m. on Monday August 27th to 3 p.m. on Saturday, September 1st. Total prizemoney will be $1,000 and a special prize of $100 will be given by the shopkeepers for their selection of the best orchid. Entries are open to financial members of all affiliated Societies. Copies of the Show schedule will be available before the Show from the Society's Honorary Secretary, Betty Clare, on 759 6166.

The Strathfield Plaza is directly opposite Strathfield Railway Station and bus terminal; ample car parking space is available in the Plaza car park.

It is anticipated that the increased prizemoney will attract entries from Sydney's top orchid growers and a spectacular exhibition of high class plants is expected.

The usual sales table will be offering its renowned large range of quality orchid plants, both species and hybrids, at realistic prices; a large range of growing requisites such as stakes, compost and fertiliser will also be available.

Potting demonstrations will be given daily at 11 a.m. and 2 p.m. Experienced growers will always be on hand to give advice on all facets of orchid growing.

Quality flowering orchid plants will be raffled, with a percentage of the profits going to Canterbury District Hospital's Maternity fund.

The Sydney Orchid Society operates in the Canterbury District which was once a garden suburb. The area is now densely populated, with whole streets lined with home units. This reduction in the number of home gardens has meant a corresponding reduction in the number of local orchid growers but the Society is still a viable organisation with a friendly band of orchid enthusiasts. Their highlight is the annual Strathfield Show, which they say improves every year ... if you don't believe it, you are invited to come along and see for yourself.

Betty Clare
Honorable Secretary

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SHOWDATES

Date	Time	Season	Orchid Society	Show Address
New South Wales				
14-16 June	9.00am-5.00pm	Winter	Manning River	Manning Hall, Manning Street Taree
18 June	8.00pm-10.00pm	Winter	Eastern Suburbs	St Lukes Church Hall
18-20 June 21 June 22 June 23 June	8.30am-5.30pm 8.30am-9.30pm 8.30am-5.30pm 8.30am-12.30pm	Winter	Gosford and District	Cnr Arden and Varna Sts, Clovelly Marketown, Henry Parry Drive and William Street, Gosford
19 June	8.00pm-10.00pm	Winter	Sydney	220 Lakemba Street, Lakemba
30 June 1 July 8 July	11.00am-5.30pm 9.00am-5.30pm 9.00am-3.30pm	Winter	The Sutherland Shire	Catt's Nursery 80 Port Hacking Road, Sylvania
3 July	8.00pm-10.00pm	Winter	St George	Uniting Church Hall Bay Street, Rockdale
4-7 July	Shopping hours	Winter	Morisset and Lakes District	Wyong Plaza
5 July 6 July 7 July	9.00am-9.00pm 9.00am-5.00pm 9.00am-3.00pm	Winter	Campbelltown and District	Campbelltown Mall
5-7 July	Shopping hours	Winter	Cumberland Orchid Circle	Castle Shopping Mall Old Northern Road, Castle Mall
5 July 6 July 7 July	9.00am-8.30pm 9.00am-8.30pm 9.00am-12 noon	Winter	Far North Coast District	Lismore Shopping Centre
7 July	9.00am-5.00pm	Winter	Southern Riviera	Church Hall Green Street, Ulladulla
13 July	12 noon-5.00pm	Winter	Shoalhaven	Presbyterian Church Hall Kinghorn Street, Nowra
17 July 18-20 July 21 July	10.00am-5.00pm 9.00am-5.00pm 9.00am-4.00pm	Winter	South Coast	Westfield Shopping Centre Figtree
18 July 19 July 20 July 21 July	9.00am-5.00pm 9.00am-9.00pm 9.00am-5.00pm 9.00am-2.00pm	Winter	Coffs Harbour	Toormina Shopping Centre
18-20 July 21 July	9.00am-5.00pm 8.30am-1.00pm	Winter	Hunter Region Combined	Stockland Mall, Jesmond
23-28 July	Shopping hours	Winter	Five Dock R.S.L.	Top Ryde Shopping Centre Blaxland Road, Top Ryde
31 July	8.00pm-10.30pm	Winter	Lidcombe Hospital	Ward 15, Lidcombe Hospital

SHOWDATES

Date	Time	Season	Orchid Society	Show Address
6-11 August	Shopping hours	Winter	Combined Southern Districts	Westfield Shopping Centre Hurstville
10 August 11 August	9.30am-4.30pm 9.00am-4.00pm	Winter	Sapphire Coast	Twyford Hall, Market Street Merimbula
18 June	8.00pm-10.00pm	Winter	Eastern Suburbs	St Lukes Church Hall Cnr Arden and Varna Sts, Clovelly
Queensland				
29 June 30June-1 July	9.00am-4.30pm 9.00am-5.00pm	Winter	North Morton Queensland Orchid Council	Mt Coot-tha Auditorium Botanic Garden Mt Coot-tha Road Toowong
6-7 July		WInter	Herbert River Orchid and Allied Plant	Agricultural Show Ingham Showgrounds
9 July 10 July	10.00am-10.00pm 8.00am-5.00pm	Winter	Atherton Tablelands Agriculture	Showgrounds, Atherton
18-20 July	9.00am-10pm	Winter	North Queensland	Horticultural Pavilion Cairns Showgrounds
19-21 July	8.30am-5.30pm	Winter	Caboolture	Memorial Hall King Street Caboolture
28-29 July		Winter	John Oxley District	Mt Coot-tha
27-28 July		Winter	Tully and District	Agriculture Show
2-4 August	Shopping hours	Winter	Toowoomba	Clifford Garden Shopping Centre
Victoria				
21-22 July	10.00am-4.30pm	Winter	Sunraysia	Greek Community Hall Elizabeth Street, South Mildura
1-4 August	Shopping hours	Winter	Ringwood	North Blackburn Shopping Centre Cnr Springfield and Blackburn Rds North Blackburn
4 August 5 August	10.00am-5.00pm 10.00am-4.00pm	Winter	West Gippsland	Packenham Racecourse Pavilion
13-18 August		Winter	Melbourne Eastern	Parkmore/Keyborough Shopping Centre
20-25 August	Shopping hours	Winter	Mornington Peninsula	Cranbourne Park Shopping Centre, Cranbourne
South Australia				
20-21 July	10.00am-5.00pm	Winter	Northern and Eastern Districts	St Philips Parish Hall Galway Avenue, Broadview

Date	Time	Season	Orchid Society	Show Address
28-29 July	10.00am-5.00pm	Winter	The South Australian Orchidaceous	Reception Centre South Road, Thebarton

Western Australia

19-21 July 21-22 July	Shopping hours	Winter Winter	Northern Districts Melville and District	Belmont Forum Shopping Centre Roy Edinger Hall
25 July 26 July 27 July 28 July	9.00am-5.00pm 9.00am-9.00pm 9.00am-5.00pm 9.00am-12 noon	Winter	Orchid Society of Western Australia	Riverton Forum Shopping Centre High Road, Riverton
26-28 July	Shopping hours	Winter	Bunbury	Bunbury Forum Shopping Centre
26-28 July	Shopping hours	Winter	Wanneroo	Whitford City Shopping Centre
1-4 August		Winter	Mandurah	
4-5 August		Winter	Wanneroo	

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ADDRESS EDITORIAL TO:
The Editor, Australian Orchid Review, 14 McGill Street, Lewisham NSW 2049 Australia. Phone: (02) 560 6166.
EDITORIAL ASSOCIATES:
QUEENSLAND:
Mr Frank Oelkers, 419 Robinson Road, Geebung 4034.
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Mr Ray Robinson, P.O. Box 129, Townsville 4810.
VICTORIA: Mrs I. Hutchins, 37 Elliot Street, Mordialloc 3195.
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QUEENSLAND: Mrs Noela Parsons, G.P.O. Box 2002 Brisbane 4001.
Phone: (07) 273 1127.
VICTORIA: Mrs I. Hutchins, 37 Elliot Street, Mordialloc 3195.
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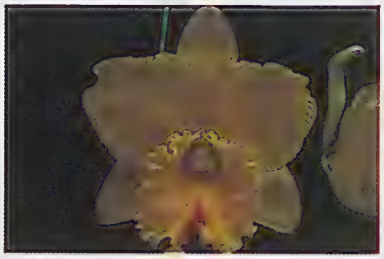

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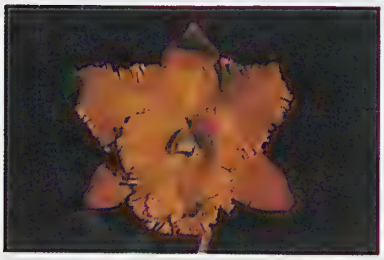

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Volume 55 – No. 4 AUGUST, 1990

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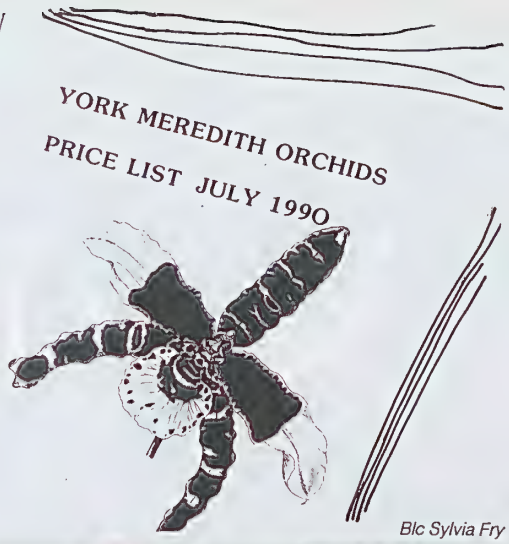

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Dedrobium engae grown by Phil Spence of Orchid Productions. A fine example of the highland, cool-growing section Latoria Dendrobiums from New Guinea. Photo: Mark Webb, Orchid Publications.

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Volume 55 — No. 4 August, 1990

NATIONAL HERBARIUM OF VICTORIA 16 AUG 1990

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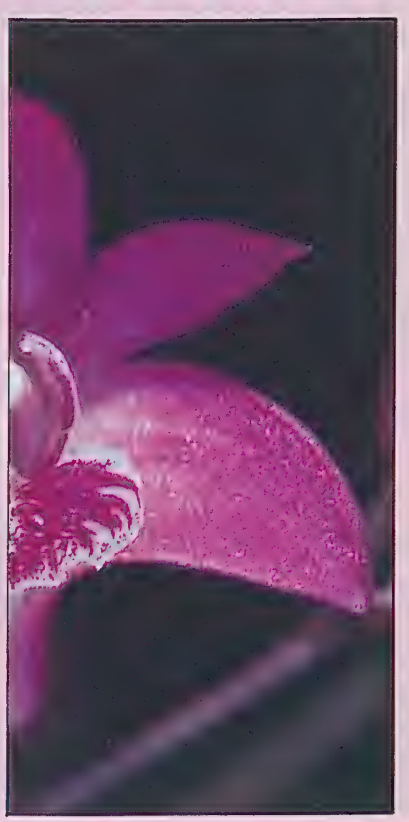
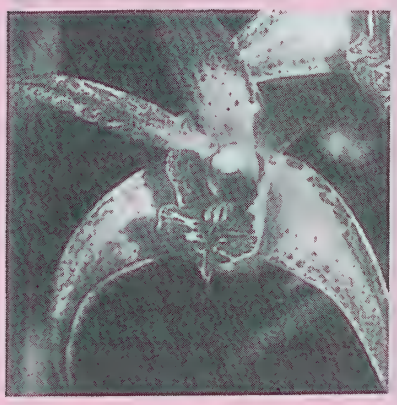
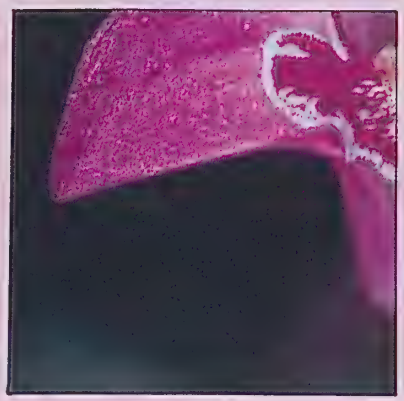
Australian Native Orchids Feature

Photos: Mark Webb

A BREAK-THROUG

Dendr
Aussie

By P

When I first thought about a breeding programme, I realized that the first two things I needed were two orchids from which to start the programme going. They had to be good orchids, they had to be orchids that I liked, and they had to have the qualities on which I believed I could base a successful hybridizing programme. I finally decided on a favourite hybrid and a native species that I felt had great potential and that I loved.

Dendrobium Ellen was an early Australian hybrid, based on two of our best-loved orchids ... *Dendrobium kingianum* and *Dendrobium tetragonum* made by Schmidt in 1928. I crossed this back onto *D. tetragonum* and produced a free flowering seedling which is rather like a large spidery *D.* Ellen. I named this first hybrid *Dendrobium* Aussie Ira as a tribute to the late well-known *Dendrobium* breeder Ira Butler.

I feel at this stage I should explain why most of my registered native hybrids have *AUSSIE* in their names. I believe that by using a name like Aussie I can promote their country of origin and so draw to our nation the credit that our native orchids in this fruitful country deserve. I think it is a shame that more of our breeders cannot be more original and that the names of their orchids do not draw more attention to their own country and the Australians who made them. Anyway, those are my views.

I was so happy with *D.* Aussie Ira that I selected one of the clones which I thought had all the best characteristics I was looking for, and went ahead and made many crosses, the majority of which have now flowered, and are I feel, very successful. One of the best

Top left: *Dendrobium* Aussie Ira-Ellen x *tetragonum*. — *Photo: F.W. Fetherston.* Left: *Dendrobium bigibbum*. — *Photo: Mark Webb.*

was a cross using *D. bigibbum* which I registered as *D.* Aussie Angel because I felt then (in 1982) and I still do now, that a cool-growing orchid with *D. bigibbum* in it is an angel to someone who does not have heat or have heated growing conditions.

These seedlings, while they were small, became just another batch of seedlings along with my other crosses and promptly forgotten because I thought they needed heat and sheltered conditions, as did *D.* Suzanne, *(D. bigibbum* x *D. tetragonum),* made by Willersdorf in 1965. Imagine my surprise when these seedlings survived and flowered, and imagine my further surprise (and delight) when the flowers were the largest and best filled-in I had ever seen up to that time, which could survive in Sydney's cold conditions.

I quickly found myself looking through my pollen bank (my pollen

FOR COLD GROWERS

obium Angel

Spence

bank is pollen which I have removed from flowers that I believe should be used at some time, put in a paper fold packet, then placed in a tight screw-top jar which is stored in the butter department of the fridge . . . the butter had to go elsewhere . . . and I have had success with some of this pollen which has been stored in this way for two years and I decided to try two crosses on the first flowering plants. The first was back to the original *D.* Aussie Ira and the second was with *D.* Sunglow (which is *D. speciosum* x *D. fleckeri)* made by Cannon in 1980.

From the next plant of *D.* Aussie Angel to flower I made three crosses and they were:

D. Aussie Angel x *D.* Eureka (*D. fleckeri* x *D. ruppianum* (Cannon 1980). *D.* Aussie Angel x *D.* Peter (*D. fleckeri* x *D. falcorostrum* Bedford 1972) *D.* Aussie Angel x *D.* Hilda

Top right: *Dendrobium* Aussie Angel (Aussie Ira *x bigibbum.*) — *Photo: Phil Spence.* Right: *Dendrobium* Aussie Angel *x Dendrobium Aussie Ira. — Photo : Mark Webb*

Poxon (*D. speciosum* x *D. tetragonum*). I named the first cross *D.* Val Peck but the latter two are not named as yet.

The first seedlings of the new crosses are now starting to flower and my impatience equals my interest in the result. One of the first I flowered was my *D.* Aussie Angel x *D.* Aussie Ira, and what a thrill, to be held in suspense while these seedlings took their time. First of all they developed strong, upright flower spikes, and then the buds started to grow bigger and bigger, and then fatter and fatter. I could only watch and wait, and wonder where all these good new points had come from. Finally they started to open, medium sized *D. bigibbum* type flowers, well filled and with good colour. *D. kingianum* and *D. bigibbum* had dominated in this cross even though there had been two injections of *D. tetragonum.*

A further two crosses have flowered to date; they are *D.* Aussie Angel x *D. Eureka* and again I was very proud to see this cross and I have named it *D.* Val Peck. The last one to flower so far was *D.* Aussie Angel x *D.* Hilda Poxon, a very free flowering cross with no set flowering season. It seems to favour the autumn and winter months. The flowers are again large and well-rounded in comparison with the parents, and the interesting thing about this cross is the lip (see slide).

A few of the crosses I have mentioned are still available at various nurseries I have supplied in Australia and New Zealand. In the near future we have more crosses coming through, and a new cross that has been made by Simpson Orchids, *D.* Aussie Angel x *D. speciosum* sounds very interesting.

I am very proud of this line of breeding and can assure you that it won't be long before we will be seeing more of this type of hybridizing and hopefully new colours of *D. bigibbum* that will grow cold. ■

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Below: *Dendrobium* Aussie Angel x *Dendrobium* Hilda Poxon. — *Photo: F.W. Fetherston.*

NATURAL ECOLOGY, CULTIVATION AND CONSERVATION OF

Phalaenopsis rosenstromii

by Ben Wallace PhD

One tends to think of the large-flowered *Phalaenopsis* as requiring constant mesic growing conditions with little diurnal or seasonal variation in water supply, warmth, high humidity and moderate, even light. They certainly seem to grow well enough in cultivation in these conditions but in the wild, the range of ecological conditions in which *Phalaenopsis rosenstromii* is observed growing indicates greater tolerance in light and water relations. *Phalaenopsis rosenstromii* is Australia's sole representative within the genus *Phalaenopsis* and was previously well known as *P. amabilis* var. *papuana* and *P. amabilis* var. *rosenstromii.*

On a trip to Cape York in September (mid dry season) 1983 I saw a number of *Phalaenopsis rosenstromii* growing in the McIlwraith Range. These were in two distinctly different habitats and the microhabitat conditions prevailing around and on the plants were also markedly different at the time. The first of these was in conditions that would generally be regarded as typical for the species. The community was mesic monsoon rainforest, or semi-evergreen notophyll vine forest, (SENVF) in the notation of Webb (1978). Here, some canopy trees lose some foliage cover in the dry season but sub-canopy conditions remain well sheltered. As well as this, some rain falls most weeks from humid air moving in from the Coral Sea to the east. The plants here were growing on trunks 15-45 cm diameter at mid sub-canopy levels — moderate shade with humidity probably varying from moderate to high depending on weather and time of day. Their condition was good — four or five dark green leaves with an active root system, running for a metre or more from the plant.

On the rain-shadow side of the range the rainforest thins or becomes gallery rainforest along permanent streams. A derived, depauperate com-

Phalaenopsis rosenstromii 'Moonshine', grown by Mike Harrison. — *Photo: Mark Webb.*

munity of the general rainforest type known as deciduous vine thicket (DVT) persists in gullies, and on boulder piles. Structurally these are much simpler and more open than the SENVF, especially in the dry season when deciduous canopy forming trees lose leaves and vines with annual shoot systems die down. However, in the wet and early dry seasons, conditions for epiphytes are luxuriant. Shade is ample, humidity high, temperature warm to hot and air movement moderate. Come the dry season proper, no rain may be received for months, the canopy thins and the sun penetrates strongly into the vegetation. Temperatures and humidity under these conditions may become harsh and fluctuate widely, depending on shade and sun patches. Night temperatures may often fall to 12°-15° C because of clear skies and decreased solar input of winter, but at the same time humidity may rise significantly. To my surprise, I saw a couple of specimens of *Phalaenopsis rosenstromii* surviving in these conditions on 5-10 cm diameter branches. Further, they gave the appearance of having grown and flowered well for many seasons. In both cases the foliage was quite yellowed, one plant having two leaves and the other, but one. The latter had a stem nearly 10 cm long with numerous dead inflorescences persisting, both had extensive, healthy root systems but with few growing tips. These plants were obviously 'hanging on for grim death, waiting for the rains.' But the punchline is, they had done so successfully for years. The species is known to possess the water saving physiological device crassulacean acid metabolism (CAM) (Winter, Wallace et at, 1983), as do most of the epiphytic orchids inhabiting such environments, and this is probably an important factor enabling its survival through 'the dry'.

There are implications from these observations for the cultivation of *Phalaenopsis rosenstromii.* Firstly, is some need for a seasonal resting period, in which night temperatures may drop as low as 15° C or even, occasionally 12° C. The watering regime should allow the plant to dry out thoroughly between waterings (especially when cold). I should point out here that during such times night humidities should not drop below about 70%, as this is when CAM plants open their stomates to 'let in' their daily requirements of carbon dioxide gas. If the humidity is too low, they may not open sufficiently to fulfil needs, which in turn, may mean insufficient photosynthetic work during daylight to keep up with the plant's growth maintenance needs. Alternatively, if it does open stomates in dry air, waterloss by diffusion of vapour out through the stomates may jeopardise the plant's critical physiological functions. And unfortunately, when the temperature of a body of air is raised (as in a heated glasshouse) without addition of water vapour, humidity drops as a direct result and evaporative power of the air increases, extracting water more rapidly from plant leaves etc. Thus, in a heated glasshouse, some measure to add water to the atmosphere at the same time, is important.

Phalaenopsis amabilis and *P. schilleriana* are somewhat reticent flowerers in equatorial, evenly mesic environments such as Singapore. It seems that some climatic fluctuation, and especially a spell of cooler nights, is the trigger needed to initiate flowering. Thus the same probably applies to *P. rosenstromii,* a need catered for by the conditions which apply in its natural habitats.

A word now about the conservation of *P. rosenstromii.* Natural populations of this species are not many and within them, individuals seem usually to be scattered and often widely separated from one another.

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This implies that pollen transference and thus, gene flow between individuals, is somewhat restricted. Outcrossing, ie. between individuals, is important in the production of offspring with the maximum range of variability of characters. This is necessary so that some individuals can better cope and survive the strictures of climatic and other environmental fluctuations and to pass on these advantageous characters to the next generation. Implications from this are several:

a) removal of individuals from wild populations must be absolutely minimal (and must only be done in full compliance with the law.)

b) any collected should be carefully and fully documented as to precise locality and ecological conditions pertaining — community type, vegetation description, niche within community and its microhabitat factors; good photos of these are a desirable part of the documentation. Any voucher specimens need not result in the destruction of a whole plant — one or more leaves will fall after collection — these should be pressed along with individual flowers (plus one or two in 70% ethanol); a good **in situ** portrait photo of the plant is a very useful part of such a voucher.

c) those collected must be given the best possible conditions to grow and flower in cultivation.

d) pollination should be effected and the offspring raised and distributed to serious growers.

e) some attempt to return new individuals to the area of original collection should be considered. In this case offspring from selfings or outcross between individuals of the one population only should be returned — avoidance of gene contamination is very important.

f) knowledge of the conservation status derived from field observations should be documented, published and used to influence public opinion and bureaucratic decisions affecting the **in situ** conservation of the species. This includes eg. formation of new national parks, increase in surveillance, etc.

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Ben Wallace
Royal Botanic Gardens
Sydney

FOR THE EAST-COAST

*Some Australian Tree and Rock Dwelling Orchids and Hybrids

by Ted Gregory

Australia is blessed with a most marvellous array of orchids, most of which can be easily cultivated on the East-Coast with a little bit of care and commonsense. In this note we will deal with a few of the more popular and their needs and hope this will generate enough interest for you to become involved in the more complicated types as your interest and knowledge increases.

For starters we will have a very short precis on where most of the orchids grow and the ones we're going to deal with. Most of our rock and tree dwellers live on the narrow strip of land between the coast and the crest of the Great Divide that runs the full length of the eastern coast of Australia and most are to be found at places from the Victoria-New South Wales border to the foot of Cape York. As you will gather this is rather a huge climatic range: from temperate to almost full tropical: but with a little of the earlier mentioned commonsense we can handle all this fairly simply on the coast here.

Also some of the orchids live in full sunlight on hot rocks whilst others live

Dendrobium speciosum in situ. — *Photo: Mark Webb.*

deep in rainforest dells and seldom ever see the sun: but with a bit of the old nous most of these obstacles can be happily overcome as well.

ORCHID GENUS — All plants are sorted into different families by botanists for the sake of identification: this is not only orchids, but every known form of life. The three major families or genus of this area are *Dendrobium, Bulbophyllum and Sarcanthinae.* Some of these orchid families are huge: with over a thousand members: and for ease of handling are split into smaller groups with minor botanical differences which are called **sub-genera.** In this article we will deal almost entirely with a sub-genus or section of the *Dendrobium* family called *Dendrocoryne* and a section of the *Sarcanthinae* family called *Sarcochilus.*

The only exception will be a paragraph at the end, on our beautiful floral emblem of Queensland, the Cooktown Orchid, which has the proper title of *Dendrobium bigibbum.* This orchid of world wide renown belongs to another section of the *Dendrobium* family called *Spatulata.*

We will now return to our two main groups and mention the names of the orchids we will deal with from hereon.

(*D. fleckeri*): *D. adae, D. aemulum, D. falcorostrum, D. fleckeri, D. jonesii, D.* sp. aff. *jonesii, D. kingianum, D. macropus* (Norfolk Island), *D. macropus* subsp. *gracilicaule, D. macropus* subsp. *howeanum* (Lord Howe Island), *D. moorei* (Lord Howe Island), *D. speciosum, D. tetragonum.*

The *Sarcochilus* group has quite a few members but we will only deal with the ones that are common in cultivation. These are *S. hartmannii, S. fitzgeraldii, S. olivaceous, S. falcatus* and *S. ceciliae.*

ENVIRONMENT — As well you know, all forms of plant life (orchids included) have adapted over thousands of years to live in a particular place in a particular manner. In theory we should be able to go out and study a plant growing in its natural habitat: and if we can simulate its conditions in our backyard we should be able to grow it easily. This can be a bit tricky and costly if the desired plant is growing on the snowline in Peru: but it is not too hard to organise if you want to grow Australian native orchids!! This is what we recommend to all orchid growers: if you can study the plant in its natural surrounds you are well on the way to becoming a good grower. Some of the most beautiful displays of native orchids in Australia are in old collections where people went and rescued orchids from timber getters and land-clearers and just re-established these orchids on rocks or trees on their properties.

LIGHT — All orchids need a certain amount of light to allow them to grow and prosper but they are very tolerant on the average and can take a large variation as long as all their other needs are being met. A lot can depend on where your bush-house is situated: a person who has their shadehouse in a breezy spot can get away with less shade than someone who has theirs in a hot dry position. Personally, I like to see a shadehouse with a range of graduated shade: this makes it so much easier to create mini-climates which are a big help if you want to grow more than a few varieties in one shed. In our nursery we have shade ranging from 50 to 80 percent to cater for the orchids we are talking of at the moment. If you only have a small shed I would suggest that you cover it with sixty percent shadecloth: if you have room for two grades I would suggest fifty and seventy percent.

All the dens mentioned earlier will grow happily under 50 or 60% shade except *D. falcorostum, D. fleckeri, D. adae* and *D. tetragonum:* these would be happier with a 60% minimum: happily tolerating even 70%. The sarcos we mention would also be happier with the 60 to 70% range.

TEMPERATURE RANGE — All the orchids we are talking of here will grow happily in a temperature range of from 35°C down to a light frost. None of them like to be over 35°C for any length of time. As you can see, temperature range on the coast here is no problem: in fact in some shadehouses I have seen here it is more of a problem to keep the orchids from getting too hot in the summer. If you ever have a problem from this type of orchids getting too hot just put in an ordinary household fan while the plants are under stress: hot air won't hurt them at all if it is kept moving.

Don't be tempted to water your orchids if they are suffering from heat: **unless** you can keep watering them till the temperature cools down: they will scald if you stop watering them while the heat is still on. If your benches are a reasonable height off the ground just hose under the benches and you'll be surprised how the temperature will drop.

Sarcochilus ceciliae 'Ellen'. 502 spikes, 12 flowers to a spike plus 6 arials. — *Photo: Ted Gregory.*

AIR AND HUMIDITY — This heading immediately sends us back to the earlier one on environment doesn't it? Once we see how they grow we are half-way there. These orchids all crave moving air: it's second nature to them. They also work well with humidity if (and I repeat if) they have that air movement.

Poor air circulation and wetness can be especially dangerous to *D. speciosum, D. kingianum,* and *S. hartmannii:* even a large plant of these can collapse in a week if treated badly enough.

WATERING — Here again the key is environment: these plants are designed to survive and multiply in our

conditions without the benefit of a garden hose and a plastic roof: so what does nature tell us in this area?

Spring and flowers and scattered rain is the norm. Summer and early autumn which means growing and hardening of plants nearly always means rain unlimited. Late autumn and winter means occasional showers, cool balmy days and rest for plants. Personally, I think mother nature has got it fairly well right: but we can go just a little bit better if we don't get carried away by the vacuum between our ears.

Top: *Sarcochilus ceciliae* Mt Tamborine, in situ. Above: *Sarcochilus ceciliae* in culture. — *Photos: Mark Webb.*

These plants have developed over the years to cope with Australia's rugged climate and can go for months without water and still flower quite well: so if we set to and give them a little more moisture at times we can improve their flowering and well-being no end. Most people on the coast here have grown a *cattleya* or two: and I think the watering needs of catts and natives on the coast are very similar: that is give the plant a good watering, leave it alone till it is nearly dry in the pot and then water it again. If you use a very open brew this might mean watering nearly every day in the summer: perhaps every second or third day depending so much on the weather and your compost. This might fall away to once a week in the winter or even once a fortnight. Watering is one thing that no two people seem to do the same and one thing that you must learn for your sake and more importantly, for the sake of your plants.

POTTING — There is one cardinal rule that goes for all orchids in my sphere as to when to repot and that is: guess when your orchid is going to send out its new roots; and then pot it a couple of days before! If you can do this your plant will never even notice that it has been kicked out of bed and someone has run off with the sheets!!

This, of course, is the perfect time to repot: but as not many of us are quite perfect, any time between September through to March will do for the dendrobiums that we are talking of here. Unless absolutely necessary don't do them December-January: the weather is just too hot then if it can be avoided.

With the sarcos we are talking of here I prefer to pot April-May-June: they don't seem to stress so easily at this time of the year.

MIXTURE — The main requirement of a mixture is that it will last till the plant grows out of the pot: it is ridiculous to shift a plant for any other reason. Also the plant must like it and the drainage must be perfect. Anything less is not good enough for our beautiful native orchids!

Our mixture is 60% American Fir Bark (or 60% Red Mountain Oak bark when I can get it) plus 40% charcoal with a small amount of Hoof and Horn fertilizer added. We use fine grade from flask to 100mm pots and medium grade above that. Unless you are using a mile too much fetrilizer this mixture will still be alright when your plant grows out of its pot.

This is just our own mixture you may have a better one yourself: if you do stay with it! In many ways it does not matter what you grow in as long as the drainage is perfect.

POTS — Pots are a matter of personal choice: the main point is they must be well drained. Whether you use plastic or clay does not matter but I think deep pots are just a waste of mixture. Squat pots are O.K. but must be crocked up half-way with crocks or gravel. We use 50mm squat plastic pots from flask, then 63mm squat, 75mm squat, 100mm and from here on we go to clay saucers, right up to 15 inches: by the time these are full it's time to think of either breaking the plant up or buying a heavier truss!

The great advantage of saucers is that there is no ball of mix underneath to go sour when we get the normal wet season: they also take very little compost. Also these saucers go close to simulating the way orchids grow in nature. Funny how we keep getting led back to that word **environment** isn't it?

If you take note of where these orchids grow in their natural habitat what do you see? If the orchid is on a rock it is normally standing on a bare stone with a bit of leaf mould or detritis about its roots for sustenance: if it is on a tree all it has is a bare branch plus the same moss and mould. This is the way these plants are designed to grow: and when the matter is looked at from this angle I think that saucers make a lot of sense. Another point that helps is the fact that we can buy saucers cheaply in this corner of Queensland.

FERTILIZER — All living plants need to be fed and orchids are no exception. This is like pots in one way: it's mainly personal choice. Some feed them every two or three days, others once a week, some once a fortnight, some now and again, some maybe never! And the plants still survive!

With the dens one can ease off in the winter because there is not much point in feeding them when they are having their seasonal rest. Sarcos need feeding all the year round as they have virtually no rest period. They also do not have much reserve capacity so they like that lolly all year round, but when you get someone like me who grows them all mixed up together, what happens? They all get fed or nobody gets fed! And as I can't stand hungry kids everybody gets fed! Might sound a bit simplistic but it seems to work O.K.

Any common fertilizer will do, but be sure to read the label and don't over-use as regards to strength. Orchid roots are rather tender and would rather be inflicted with weak fertilizer frequently than strong fertilizer occasionally. Quite a lot of fertilizers have lots of nitrogen in them, but are rather light on as far as phosphorus and potassium are concerned. I like to see a fertilizer that contains about 10% of both phosphorus and potassium.

PESTS — Out in their own environment our orchids can cope fairly well with their natural pests: but once we jam them all in a shadehouse where their natural predators cannot get at them it's rather a different kettle of fish. For the average person who might have a couple of hundred pots control is not much of a hassle: there never seems to be much of a problem where plants are spaced out and can be checked easily visually.

If slugs and snails are a pest at times a few Baysol pellets will nearly always control them. These will also control the neighbours fox terrier as well so be carefull where you put them.

If they are a major problem, especially garlic snails, it may pay you to do your place with Mesurol 75 wettable powder. This is a very potent poison that is also proving very effective against dendrobium beetle, dendrobium midge, mites, etc. When using it thoroughly saturate the contents of your pots if you want to get the garlics, as they sure can hide! Do the floors and anywhere there may be slugs and snails hiding. If you have a problem with them in your yard do it too; you'll be astounded at the number of defunct snails and slugs on view the following day. Mesurol 75 gives such good results that we do our place two or three times a year which makes slugs and snails history in this area.

Loopers and various caterpillars can be a pest at times and are easily controlled with carbaryl as a spray or diazanon as a dust. Once the flower spikes start to show we only use a dust as this will not harm the flowers.

Spider mites are one of the worst problems of orchid growers, especially those with a glasshouse or anyone who grows their plants a bit on the dry side, as they thrive in dry heat. Quite a few growers are getting great control by using batches of predatory mites which are now available commercially. If these will give you control it does away with the need to have to use potent pesticides like Mesurol and Supracide 40. If you want to give biological control a try you must read all data with them as you have to modify your fungiciding programme or you will kill all your new predatory mites.

I could write for a month on chemicals which I hope you don't have to use anyhow: so I will leave this subject

Sarcochilus ceciliae 'Glenugie Deep Pink'. — *Photo: Mark Webb.*

for now. If you have problems see one of the local chemical companies: mostly they are only too happy to help you.

Remember: all chemicals are safe if handled as the maker intended them to be. Always wear a mask at least and make sure you have the right filter in it. **Don't** forget to put a new filter in the mask every so often. I have been using chemicals for 30 years with great respect and doubt if I am any sillier than when I started. Never use higher pressure than you have to: it's only when you atomise the stuff that it goes all over the place. You might use a bit more chemical this way but the stuff will be on your plants which is where it should be: not over in the neighbours yard killing his goldfish.

Whenever possible buy your poison as a wettable powder; not as a liquid.

Sarcochilus falcatus in situ. — *Photo: Mark Webb.*

The liquid contains an emulsifier that will cut into the cuticle or skin of your plant if used often enough. The more you cut the cuticle the easier it is for insect to penetrate your plant. Ever hear of the old vicious circle?

DISEASE — Disease is not much of a problem in a shadehouse **if air movement and compost** are right. Funny how that word environment can be a key to a puzzle isn't it? Where air movement is poor leaf spotting can be a problem. This is easily controlled by Mancozeb or any chemical of this type if you can't boost the air movement.

If your compost is a bit on the soggy side and we get a wet period you can be in for big trouble from *Phytophthora* or *Pythium* fungus. These both attack wet roots and can turn a specimen plant into compost within a week. I'm a great believer in the old saying that **prevention is better than cure**: and the minute the weather becomes hot and steamy we start a preventative programme that involves using Ridomil or Fongarid roughly every 3 weeks with a dose of Manozeb in between. This will be kept up till the weather cools down and becomes cool and crisp again.

Rhizoctonia fungus can also destroy collections up here if left go its own way. This is one of soil fungi that are always with us but decides to get out of hand once in a while. This wog attacks the roots of any orchid but is easier to see in a *cattleya* plant than a native, though it is just as hard on natives. If you have a plant that looks miserable: just pick it up by the plant not by the pot: if the pot and compost stay behind it is a fair bet that the plant has *Rhizoctonia.* In a typical case the roots on the top of the pot will still look O.K. but all the roots in the pot will have died or rotted off.

Purasoil will cure this: just fill a bucket with the right mixture and soak the plant to above the rhizome for a few minutes: repeat in a fortnight and you won't know the plant in three months. We do our whole nursery twice a year as a preventative: I think it is money well spent.

Purasoil is used in the preparation of compost by many nurseries: which backs up my old cry of prevention is . . .

To round off this article we will list the orchids individually and have a word on any particular foible that they may have.

D. speciosum

The Queensland king orchid. If the Americans had this it would be number one in the world by now. Happy in pot culture, also slab: does not like wet feet.

D. ruppianum

Happier growing on a slab than in a pot.

D. aemulum

Slab culture: treefern or old wood: will *not* grow in pots.

D. gracilicaule

Slab or pot culture.

D. x gracillimum

Pot or slab. Loves air movement: hang it high and cool.

D. x suffusum

Pot culture.

D. falcorostrum

Regarded by many as Australias most lovely orchid. Alas, here on the Gold Coast we are beyond it's northern limit so you will find it hard to grow; but if you are lucky you may succeed. Only slab culture; hang it high in the coolest spot you can find. 70% shade will help.

D. fleckeri

From the Atherton: loves it cool, shady and misty. Slab culture for preference.

D. adae

Exactly the same as fleckeri.

D. kingianum

Pot culture.

D. x delicatum

Pot culture: vigorous grower: hates wet feet.

D. tetragonum

Slab culture: cool damp and shady.

S. hartmannii

Pot culture: good air movement: hang it up high with 60 to 70% shade.

S. fitzgeraldii

A most beautiful orchid that loves it cool and shady. Near the ground in the coolest spot you can find: 80% shade for preference. Pot culture.

S. olivaceous

Same for *fitzgeraldii* only slab culture.

S. falcatus

Same as for olivaceous.

S. ceciliae

Pot culture: to the standard mix we add 50% gravel: heap the mix in the pot then sit the plant on top: then place a small piece of stone on top of the plant till it anchors on. The piece of stone on top holds the plant down till the roots dig into the mixture and give it grip.

Slab Culture

This is an easy way to grow plants

that are very prone to loosing their roots if grown in a pot. Any rather permanent material will do: pieces of treefern, old hardwood or cork are all good. In an ordinary shadehouse slab culture is no harder to look after that pot culture. However if grown under a waterproof roof they will need watering more often.

D. bigibbum

This is a most beautiful orchid that can be grown on the coast here with a bit of the old T.L.C. (Tender loving care).

One of the varieties of this orchid called *D. bigibbum compactum* is easier to grow here than straight bigibbum so we deal with this here.

The whole key to this orchid is the same old word, by now you can guess: environment. Where this plant grows up north almost all the yearly rainfall occur from the end of November till March: and in this time the plant has to make all its growth and become mature.

The plant must be grown on a slab here so its roots will not stay wet when the winter comes, as this plant is not used to winter rain: it does not mind the cold but wet feet will surely kill it.

D. bigibbum must be fed heavily from the minute it commences growth in the spring so it can mature off early: if you do a good job you will be rewarded with a cloud of flowers through February to late April. If we get a fine autumn and winter the plant can be left outside: but it will be much happier under a piece of roof through the winter.

181 Oxenford Road,
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Qld. 4271

*This is an extract from "A Guide to Growing Orchids on the Gold Coast" which is now available in its second edition.

The works of Eric Boston, Wal Murphy, Tony Clarson, Ted Gregory, Dr Noel Grundon and many others advise on how to grow orchids in a temperate climate. Fifteen contributors in all have made this Black & White publication one which can be referred to by growers from anywhere.

This book is a necessity for novice and older growers whether they be interested in Paphiopedilums, Cattleyas, Odontoglossums, Dendrobiums, Cymbidiums, Vandas or Australian Natives.

If your Society does not possess this in your library you can obtain it by writing to the following address:

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My Orchid Life

by Peter Piaowen

I am a member of the Kamanuwan Clan of the Malipini tribe in Enga Province of Papua New Guinea. A few years before Independence we listened to Andree Millar talking on the radio on Saturday mornings that village people could grow flowers on their land and sell them in the shops of Port Moresby and it would grow into an industry if we worked. She used to go to villages and tell people what to do. So I went to our District Commissioner in Wabag and asked him if he could help us get some work on our land.

The District Commissioner, Mr John Gordon-Kirkby, who was a good friend to us, got in touch with the Department of Agriculture in Port Moresby and told them, and they told Andree Millar to come and see us. She did this, she came to Wabag, and the District Commissioner drove us as near as he could to our land, and then we walked up the mountain.

It was 9000 feet above the valley, and we could sit on the top and look down below, and over at the high mountains across the other valleys. My people had gathered a lot of orchids to show her, and she said that if we had a road up there, what else would it be but an Orchid Safari Camp? She said people would come there to stay and look at orchids and if we grew them properly, they would buy some. She also said that not too many people would walk up that mountain to buy orchids and walk down again, so we said that we would build a road, up from Sari, the village nearest to us.

So we did build the road, about three miles of it, with our people and our own spades. Then the District Commissioner gave us a little help, and without him we would not have done it. We cleared and levelled the land where we would build the camp, and some of the men did this while all our Clan built the road, and when we started, we got a little unofficial help from some other Government officers.

We put up the first little house which we called 'Haus Orchid Bilong Andree' and we painted a sign with that on it and a picture of our orchid *Dendrobium engae.* We always keep that little house there for her, but we have improved it since the first days. We built it of wood from our own trees as posts, walls woven of bamboo, and a thatched roof of kunai grass.

Peter Piaowen — *Photo: Andree Millar*

Since then we have built a Lodge, with the same materials and with our own hands, we have twelve twin rooms, a lounge and a dining room, office, showers and toilets all under one roof and we now have concrete floors throughout. We have a big fire in the lounge in the evenings because it is cool at night. We have a cookhouse outside where we make the meals, and our chief cook has been there from the beginning.

We have a big lawn outside and tables and forms where people can have meals or work with their plants. As I developed the Lodge, I put in a bar, but we have had problems with liquor in our Province and for the present time, it is all forbidden to help law and order.

We have no problems with meals because down in the valley below, at Wabag, the people have a big market with plenty of vegetables and some of the fruits that grow around here, especially bananas, passion fruit, some pineapples from other villages below us.

I have a large collection of Highland orchids in my shade house, now mostly specimen plants and these are not for sale. We do have another section where we grow plants that people can buy, and when we collect them from the forest, we grow them on for a year or more until a new growth is established. We do understand CITES rules and regulations but it is hard to make people collect plants

in what other people call legal. I have had a High School education but I myself find it hard to see why other people can tell us what to do with our orchids.

I have always collected from logging areas, and from where we cut the bush down for new gardens. There are also a lot of landslides in the garden area, from the mountains above, and the people always pick up what is there.

At the present time, there is a big mining operation a couple of hours drive away from here, and the Company are cutting down all the forest. I take my vehicle and a friend's truck out and pick up as many as we can, but there are thousands and thousands down in the trees. When the last orchid party came to us in April, Andree was really angry until I explained where they came from. I knew they were coming so we went out and collected some. I had over 400 *Dendrobium cuthbertsonii,* mostly the red form, but there were a few others, I had hundreds of two kinds of *Dendrobium vexillarius, Dendrobium aurantiroseum, Dendrobium alaticaulium,* several kinds of *Latouria* Dendrobiums, and other Dendrobiums in the *Calyptrochilus* and *Pedilonum* sections, as well as a lot of other kinds of orchids.

It is very expensive driving over these kinds of roads to collect orchids down in the logging areas. I have vehicle expenses and also I have to pay the men who go with me to get them. I could not use all the orchids that are on the ground there, but what I do is, when we bring in a load, we repair them and out them on fibre and try to grow as many as we can.

The last two orchid parties who came here were the first for a long time and I do say thank you to Andree and Gerald McCraith and the others in the party. My orchid men were very pleased to sit down with them and learn how to care for these orchids when they arrive in such a damaged condition. Some of the party spent two days just helping us fix them up. I was very grateful to Dr Richard Warren for helping us put names on them, and for the Australian people who bought me the plastic tags and pencils to write on them. It is hard to get those things up here and I would like to say thank you again.

We have made walks through the bush around the Lodge and we have orchids growing on all the trees as well as in the little shade houses and the pipes on which we hang them. We are setting pods on some of the special plants like *Dendrobium engae* and the Orchid Foundation Mr Gerald McCraith and Mr Phil Spence are raising the seeds for me. During my visit to Australia, I am to be shown how to take the little plants out of the flask and out them in small pots. We will then have a lot of little plants to sell, instead of collecting in the forest, although I will go out and get as many as I can from the logging around the mine when I have enough money to do it.

I am very grateful to Gerald McCraith for sending me the copy of Schlechter and for Dr Warren giving me the book about the *Oxyglossum Dendrobiums.* This orchid group came to see us twice this year and some of them have sent us orchid magazines, the Orchadian, the Orchid Review and Orchids Australia, and we have been very happy to see our orchids in the stories.

I am looking forward to the time spent at the 1st Australasian Orchid Conference and I know I will learn a lot that will help my clan. We are all grateful to Andree who is a member of our clan, and I do not know how to thank Gerald, Wal Upton, Nettie Meggetto and Andree for paying my expenses to Australia and to the Conference.

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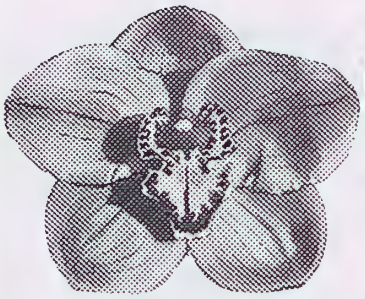

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Orchid Dalliance success

The inaugural North Moreton Orchid Dalliance, which was held around the northern suburbs of Brisbane on 5th & 6th May 1990, was an outstanding success, and orchid lovers from far and wide have commended the event and applauded its continuance. Around 200 people enjoyed a weekend of dalliance among orchids. They came from as far away as Adelaide, Sydney and Newcastle, and coaches brought a good number of enthusiasts from Rockhampton, Mackay and Gladstone. The numbers were slightly less than organizers had hoped for, however as a 'maiden run', possibly the pure logistics involved in providing a programme encompassing a fairly varying interest in orchid culture, may have caused more headaches than experience could cater for, so perhaps the numbers were just right. For its part, Brisbane exhibited some of the best weather experienced in quite some time.

Registrants were treated to visits to ten private collections over the two days, and shared experiences in growing their favourite orchids, and some perhaps were tempted to try something new. The Saturday night Dinner-dance was a relaxed affair and the pleasant surroundings promoted conversation which occasionally moved away from orchids. The after dinner plant Auction provided a range of quality-lots requiring far in excess of the time allocation, necessitating holding over the remainder until Sunday afternoon.

An outstanding area of welcome surprise was the unbelievably generous support received from the Commercial Nurseries and other associated business enterprises. Donations from only 13 Nurseries and two other associated businesses accounted for an approximate real value of around $2000. The auctions and rolling raffles kept the acquisition of some of those exclusive orchids, of which everyone has always 'wanted one', high on the agenda. For the accommodation of those supporting Nurseries etc., a Commercial Sales area was set up on Sunday afternoon, where a certain amount of wheeling and dealing satisfied the needs of both those who had them, and those who wanted them.

The North Moreton Orchid Dalliance Badge proved popular, probably because it turned out to be quite an attractive item, and one which will almost certainly become a collector's item, the 1990 dated edition, and the first of an ongoing series. Each two years, only the flower, perhaps the colour, and of course the date will change. A purple *Phalaenanthe Dendrobium* flower set in an off-white background, surrounded by a green band, and gold lines and lettering, was depicted on this year's badge, a line drawing of which accompanies this report. Some badges are still available from the North Moreton Qld. Orchid Council, if you would care to add this beautiful piece to your collection.

The organisation of each section of the programme was implemented fairly smoothly, however some valuable experience has been gained, and in two years time this weekend will be back, bigger and better. Watch for it!! With Brisbane and Rockhampton alternating Dalliances, every year can be a great year for orchids, and for those who care for them.

Peter R. Head
North Moreton Orchid
Dalliance Committee

The Queensland Orchid Society Inc. Autumn Show

As usual this Show was held in the Conference Room of the Botanic Gardens, Mount Coot-tha from April 6 to April 8, 1990. This venue is ideal for conferences and orchid shows, and it is also used by many other societies and clubs to stage displays.

Besides attracting the hard core ORCHID SHOW GOERS, many interstate and overseas tourists attended and were lavish in their praise for the colourful spectacle.

Stewart Heyden tabled the GRAND CHAMPION AND RESERVE CHAMPION. His GRAND CHAMPION *Dendrobium* C.K.AI 'OKA' was superbly grown and tabled in fine show condition.

It carried two strong spikes (about 30 blooms per spike) of brownish-burgundy and yellow, heavily textured intermediate blooms. The arrangement on the stem was spot on. Stewart departs from the rule and produced this fine plant, not in a small pot, but in an eight inch pot.

His RESERVE CHAMPION, *Phal.* QUEENSLANDER QUEEN was another robust plant that bore eight, four inch well shaped blooms on a strong arching spike. Once again he showed his preference for a large pot. You guessed it – 'Twas an eight inch.

Bulbophyllum macphersonii, grown by T. Eiser, was awarded the CHAMPION SPECIMEN of the Show. This little Aussie, with its tighly packed pseudo bulbs was literally covered with blooms.

The CHAMPION OF THE NOVICE SECTION was awarded to a very fine form of *Ctna.* Keith Roth x *Dial.* Snowflake, tabled by F. Nicholson. As for many years now the trophy for this Section was awarded by Jim Mackinney. Although not as active nowadays, Jim always showed much interest in the Novice Grower and many of us have much to thank Jim for.

The MOST PRE-EMINENT ENTRY by an Individual Grower was awarded to K. Unsworth for his fine effort in producing *Oberonia palmicola.*

A very fine form of *Phal. violacea* easily won the CHAMPION SPECIES of the Show. I don't know its origin – Borneo or Malaya but the three lime and violet blooms were outstanding for this species. J. & M. Smith tabled this Champion. Incidentally, I could not detect the fragrance of violets that exudes from violaceas but, their perfume was most likely mingling with scented aroma that is present at all Orchid Shows.

Dave and Betty Littman tabled a very desirable form of *Dend. bigibbum* var *superbum* 'Col', to win the CHAMPION DEND. BIGIBBUM. This fair-dinkum 'cookie' (no white spot on the lip) bore sixteen spikes, each one carrying about a dozen typical 'cookie' blooms.

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Successful Workshop and Mini-Show on NSW North Coast

The Far North Coast District Orchid Council held a highly successful Workshop and Mini-Show at Woodburn on Sunday 6th May 1990. The President, Mr Bob Saunders, praised the efforts of the Woodburn Orchid Society, which hosted the Workshop. In excess of 250 people attended from as far afield as Maitland, Taree and Brisbane.

Mr Graeme Banks (President of OSNSW), Mr Bob Saunders (President FNCDOC) & Mrs Joyce Widdows (Secretary FNCDOC). Bob has just given Graeme one of the plants donated for auction Laelia anceps and invited to call for the first bid! In the background can be seen the Champion of the Table Show Phalaenopsis Musashino (Al-Yun-Sp) x Arai A-9 SM/JOGA. *Photo: Courtesy Mr Ken Woods, member of Woodburn Orchid Society.*

They heard Mr Graeme Banks (President, OSNSW), Mr David Banks (Vice-President, OSNSW and Hills District Orchids), Mr Ted Gregory (Merrellen Orchids), and Mr Sandy Anderson (Bananacoast Orchids) emphasise the practical aspects of orchid culture. This was particularly appreciated by the many newer growers who attended. There was strong support for the new Workshop format to become an annual event. This and other recommendations will be considered at the next meeting of Council delegates.

The high standard of entries in the Show was attested by the fact that three were considered for awards by the North Coast Judging Panel.

Champion of the Show was *Phalaenopsis* Musashino (Al-Yun-Sp) x Arai A-9 SM/JOGA owned by Noel Heyden of the Tweed Orchid Society.

Reserve Champion of the Show was *Paphiopedilum fairrieanum* owned by Don Linney of the Northern Rivers Orchid Species Society.

The Council expresses its gratitude and thanks to all who attended and ensured the Workshop's success. We all look forward to a bigger and better one next year.

Brian Moore
Publicity Officer

Orchid workshop in Wangaratta

Over 100 people were in attendance for the Victorian Orchid Club Workshop held in the Wangaratta Secondary College Hall on Saturday 19th May.

Wangaratta & District Orchid Society hosted the event described by the President of the Victorian Orchid Club Cy Hutchins as the largest ever held in country Victoria. People from as far away as Geelong, Lilydale, Kyabram, Walla-Walla, Mitta Mitta, Mt. Beauty, Tallangatta and many from the local district were treated to a very informative day by the six speakers with the VOC group included were lectures on Australian Natives, Paphiopedilums, Cattleyas, Lycastes and Cymbidiums together with Housing of Orchids and Pests and Diseases. Demonstrations on potting, and deflasking were also given by some of Victoria's most experienced orchid growers. Local members were in charge of the catering which was enjoyed by all. The most successful day concluded with the competition for a plant of the much sort after *Cym* Jubilation 'Geronimo' FCC VOC donated by Mr Bob Hodgins and was won by Mr Eric Edgcombe who travelled some 110 kms from Walla Walla to attend the Workshop.

* * *

The VOC have recently conducted a raffle in aid of the Australian Orchid Foundation. The prizes were donated by S & E Bato Glasshouse Equipment. It was run with the help of the Affiliated Societies throughout Victoria and raised a substantial amount of money. The winner of the first prize a glass house heater was Miss Condie of Cobden and the 2nd prize of a pot stand went to H. Jacobs of Stratford and 3rd prize also a pot stand went to Mrs. Killiam of Moorabbin.

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New Orchid Hybrids

JANUARY/FEBRUARY/MARCH 1990 REGISTRATIONS

Supplied by The Royal Horticultural Society as International Registration Authority for Orchid Hybrids

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NAME	PARENTAGE	REGISTERED BY
ARANDA		
" Mariana Lila	*Aranda* Wendy Scott x *V. sanderana*	J. McConnell (H. Kamemoto)
ASCOCENDA		
" Starrlyn's Kokomo	*V.* Roy Fukumura x *Ascda.* Yip Sum Wah	R. Farwell (R.F. Orch.)
" Starrlyn's Play	*Ascda.* John de Biase x *V.* Kasem's Delight	R. Farwell (R.F. Orch.)
BRASSOCATTLEYA		
" Chocolauca	*C.* Chocolate Drop x. *B. glauca*	LIn Han-Ben
" Hawaiian Pastel	*Bc.* Pastoral x *Bc.* Donna Kimura	Kodama's
BRASSOLAELIOCATTLEYA		
" Boy O'Boy	*Lc.* Hawaiian Fantasy x *Blc.* Orange Nuggett	H. & R. Nurs. (Orch. Center)
" Chian-Tzy Emperor	*C.* Horace x Blc. Bryce Canyon	Chian-Tzy Orch.
" Diane Stidham	*Blc.* Green Fantasy x *Lc.* Grodske's Gold	J. Grezaffi
" Fiesta Girl	*C.* Penny Kuroda x *Blc.* Orange Nuggett	H. & R. Nurs. (Orch. Center)
" Grezaffi's Tammy	*Blc.* Jane Helton x *Lc.* Charles Fazio	J. Grezaffi
" Hawaiian Gypsy	*C.* Chocolate Drop x *Blc.* Bryce Canyon	Kodama's (Edw. Wong)
" Koh Sock Khee	*Blc.* Heron's Ghyll x *Lc.* Kathryn Leahey	Koh Keng Hoe's
" Memoria Louis Whittingham	*Blc.* Waikiki Gold x *Bl.* Sunset Surprise	C. W. Hamilton
" Ninja	*Bc.* Binosa x *Lc.* Hoodini	Lin Han-Ben
" Thelma Reder	*Blc.* Malworth x *C.* Chocolate Drop	B. Reder
BURRAGEARA		
" Stefan Isler	*Vuyl.* Edna x *Onc. leucochilum*	J. Isler
" Trianon	*Colm.* Jungle Monarch x *Oda.* Marie Antoinette	Vach. & Lec.
CATTLEYA		
" Blue Bayou	*C.* Portia x *C.* Sapphire	Kokusai's
CATTLEYTONIA		
" Sangel	*C.* Little Angel x *Bro. sanguinea*	H. & R. Nurs. (Orch. Center)
COOKARA		
" Topical Snowflake	*Dial.* Snowflake x *Ctna.* Keith Roth	H. & R. Nurs.
CYMBIDIUM		
" Grands Vaux	Cariga x Many Waters	E. Young O.F.
DENDROBIUM		
" Carol Henry	Shogun x Penang Candy	S. Alsagoff
" Hawaiian Wine	Alan Umaki x Ahulani Hinojosa	Kodama's
" Juwita	Intuwong x Walter Oumae	Neo Lam Tong
" Lemon Ice	*cruentum x trigonopus*	H. & R. Nurs.
" Lime Frost	*cruentum x scabrilingue*	H. & R. Nurs.
" Lorrie Kamemoto	Hepa x Tsuruyo Kamemoto	K. Kamemoto
DORITAENOPSIS		
" Kinghorn	*Phal.* Hawaiian Clouds x *Dtps.* Orglade's Puff	Zuma Canyon's
" Lo Kwai Cheng	*Phal.* Kumbar x *Dtps.* Double Trouble	Superclone's
" Maufant	*Dtps.* Evelyn Röllke x *Phal.* Saint Brelade	E. Young O.F.
" Mojang Priangan	*Phal.* Barbara Moler x *Dtps.* Double Trouble	L. Parnata

NAME	PARENTAGE	REGISTERED BY
EPICATTLEYA		
" Orange Starburst	*Epc.* Fireball x *Epi. cinnabarinum*	*H. & R. Nurs.*
LAELIOCATONIA		
" Mandi Bent	*L. anceps* x *Ctna.* Keith Roth	Summons
LAELIOCATTLEYA		
" David Zeeman	*C. bowringiana* x *Lc.* Eva Shill	L. Zeeman
" Forphylla	*L. harpophylla* x *C. forbesii*	Don R. Allen
" Franco	*C. forbesii* x *Lc.* Candora	A. Franco
" Hawaiian Expression	*Lc.* Susan Holguin x *Lc.* Peggy Huffman	Kodama's
" Hawaiian Swan	*Lc.* Swan Ballet x *Lc.* Persepolis	Kodama's
" Joe's Tina	*Lc.* Peggy Lynn Grezaffi x *Lc.* Amberworth	J. Grezaffi
" Linda Booth	*Lc.* Dinard x *C.* Mary Lynn McKenzie	F. Booth
" Mary Sherrill	*Lc.* Molly Tyler x *Lc.* Marceau	M. Sherrill (W. Bertsch)
" Memoria Helen Ott	*Lc.* Dorothy Warne x *Lc.* Carol Ann Haussermann	Hausermann's
" Memoria Viola Horman	*C.* Ariel x *L.* Amoena	C. Whitlow
" Orglade's Merriment	*C.* Cherry Chip x *Lc.* Mildred Rives	Jones & Scully
" Razzle Dazzle	*Lc.* Ecstacy x *Lc.* Persepolis	Orch. & Ferns (Jones & Scully)
MILTONIA		
" Augres	Pam-Pam x Alger	E. Young O.F.
" L'Etacq	Robert Strauss x Hamburg	E. Young O.F.
" Roelie Van Rooyen	Jersey x Hamburg	M. Rathbone (R. van Rooyen)
MOKARA		
" Tengku Ampuan Rahimah	*Arach.* Ishbel x *Ascda.* Suksamran Spots	Lim Mok Hai (Wong Keng Chee)
ODONTIODA		
" Colomberie	*Oda.* Golden Rialto x *Odm.* Unalaska	E. Young O.F.
" Coq De Roche	*Cda. noezliana* x *Oda.* Patra	Vach. & Lec.
" Encantada	*Oda.* Anne Boleyn x *Oda.* Elac	H. Rohrl
" Memoria Toshi Uradomo	*Oda.* Anne Boleyn x *Odm harryanum*	F. Uradomo (A. Easton)
ODONTOGLOSSUM		
" Augres	Mont Sohier x Pumistor	E. Young O.F.
" Greve de Lecq	Mont Sohier x Unalaska	E. Young O.F.
" Isler's Abendglut	*bictoniense* x *hastilabium*	J. Isler
ODONTORETTIA		
" Hanni Isler	*Odrta.* Mandarine x *Odm. uro-skinneri*	J. Isler
PAPHIOPEDILUM		
" Annabelle	Betty-Anna x *bellatulum*	J. Hanes
" Arrobelle	Merrybells x Valwin	J. Hanes
" Booth's Saint-Cilio	*ciliolare* x Saint Swithin	F. Booth
" Booth's Saint-Vent	*venustum* x Saint Swithin	F. Booth
" Fair Daughter	Western Daughter x *fairieanum*	M. Serpa
" Goultevirens	Goultenianum x *virens*	T. Kojima
" Hammonasset	Inca x Redvale	Dr./Mrs. W. W. Wilson (Chester Hills)
" Happy Time	Prime Time x Challow	J. Hanes (Stewart Inc.)
" Karakung	Dazzling World x Olympic Forest	Dr./Mrs. W. W. Wilson (Chester Hills)
" Lemon Chiffon	Denehurst x Saint Ouens Bay	C. Day Jr.
" Mahogany Rose	Roseling x Wigwam	J. Hanes
" Mattakesset	*praestans* x *lowii*	Dr./Mrs. W. W. Wilson
" Narragansett	Huntava x Pacific Ocean	Dr./Mrs. W. W. Wilson
" Silver Dust	Burleigh Mohur x Greyi	J. Hanes
" Starr Cherry Bomb	Veritilario x Maudiae	Lester Ng
" Starr Transflies	Transvaal x Vintner's Treasure	Lester Ng
" Summer Boy	*argus* x Supersuk	A. Mochizuki
" Sylvan's Beauty	Cardinal Beauty x Sylvan Vale	J. Hanes
" Treevill New Era	Tree of Jester x Greenstede	M. Kimura
" Whitecrest	Mooncrest x F. C. Puddle	J. Hanes
" Wahoo	Tacoma x Burpham	Dr./Mrs. W. W. Wilson

NAME	PARENTAGE	REGISTERED BY
PHALAENOPSIS		
" Cardhu	Zuma's Champagne Girl x Ana Hernandez	Zuma Canyon's
" Carol Swearingen	Deventeriana x Ambotrana	S. Swearingen
" Doctor Christeo	Kumbar x Opaline	Superclone's
" Kumbar	White Falcon x President Hoover	Superclone's
" Memoria Adelaide Taylor	Golden Duplicate x Goldiana	G. R. Taylor
" Memoria Doris Jordan	Coquinette x Carmela's Gem	Baidan
" Memoria Gershwin Abe	Cherokee x Hawaiian Clouds	Zuma Canyon's
" Nantucket	Ryne Zimmerman x Zuma Talisman	Zuma Canyon's
" Professor Magdi Yacoub	Barclays Celebration x Lady Ruby	McBeans
" Starbuck	Hawaiian Clouds x Margo	Zuma Canyon's
" Van Gogh	Chamonix x Schooner	Zuma Canyon's (O/U)
PHRAGMIPEDIUM		
" Demetria	*caudatum x sargentianum*	D. & B. Mellott (L. Hegedus)
POTINARA		
" Free Spirit	*Pot.* Twentyfour Carat x *Sc.* Beaufort	H. & R. Nurs. (Orch. Center)
" Honey Apple	*Sic.* Tropic Dawn x *B. nodosa*	Lin Han-Ben
" Lemon Jewel	*Sic.* Tangerine Jewel x *Pot.* Lemon Tree	H. & R. Nurs.
" Tlna Grezaffi	*Sic.* Naomi Kerns x *Blc.* Camilla	J. Grezaffi
PTEROSTYLIS		
" Chocolate Drop	*pedunculata* x *cucullata*	L. & M. Nesbitt
" Marelba	Mary Eleanor x *baptistii*	L. & M. Nesbitt
SOPHROCATTLEYA		
" Petite Baby	*Soph. coccinea* x *Sc.* Petite Pride	H. & R. Nurs. (Orch. Center)
SOPHROLAELIOCATTLEYA		
" Kenneth Heckeroth	*Sic.* Kauai Starbright x *Sic.* California Apricot	B. Heckeroth
" Petite Jewel	*Sic.* Tangerine Jewel x *Sc.* Petite Pride	H. & R. Nurs. (Orch. Center)
" Poochie's Delight	*Sl.* Psyche x *C.* Interglossa	H. & R. Nurs. (Orch. Center)
" Sabados	*C.* Joanmarie Shelton x *Sic.* Persian Garden	A. Borello
" Wössner Orange Digger	*Lc.* Gold Digger x *Sic.* Madge Fordyce	F. Glanz
‡*THELYMITRA (Thel.)*		
" Melon Glow	*antennifera*† x *luteocilium*†	L. & M. Nesbitt
VANDA		
" Golamco's Supreme	Keeree's Sapphire x Fuchs Delight	A. Golamco
" Grezaffi's Tammy	Joselyn x *teres*	J. Grezaffi
" Philippine Beauty	Bhimayothin x Lenavat	A. Golamco
" Ray Robinson	Vivan x Red Ball	R. F. Orch. (Kultana's)
" Starrlyn's Musical	Ratchada x Kasem's Delight	R. Farwell (R. F. Orch.)
VAUGHNARA		
" Never Quit	*Bc.* Binosa x *Epi. alatum*	Lin Han-Ben (Lin Yung-Tsu)
WILSONARA		
" Hansueli Isler	*Wils.* Siobhan x *Wils.* Vanessa Baumann	J. Isler
" Jakob Isler	*Odcdm.* Tiger Butter x *Wils.* Vanessa Baumann	J. Isler
" Ursula Isler	*Wils.* Siobhan x *Onc.* Goldrausch	J. Isler

‡Thelymitra, J. R. & G. Forster is a generic name new to registration usage. The standard abbreviation for *Thelymitra* is Thel.
†This symbol marks the first occurrence as a parent in hybrid registration of the following species:
Thelymitra antennifera; Thelymitra luteocilium.
CORRIGENDA – Orchid Review list of:
March 1990, P XII, line 35: should read *Adacidium = Ada, Lindley x Oncidium,* Swartz.

NOTICE

There is likely to be no list of New Orchid Hybrids in the June issue of the *Orchid Review* as the new computer for hybrid registration is due to be commissioned in April and every effort is being made to ensure that the new database, which will be used for future registrations, is completely accurate.

STOP PRESS

REGISTRATION APPLICATION FEE CHANGE

Because of the success of the computerisation of orchid registration the Royal Horticultural Society, as International Registration Authority for Orchid Hybrids, has decided that the registration fee for all applications received at the R.H.S. offices on or after 1st June 1990 will be reduced to $(USA) 12.50/£7.50. In addition refunds (i.e. credit notes) will be issued for all unsuccessful applications received on or after 1st June 1990.

Reprinted from *The Orchid Review*, May 1990.

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New South Wales

DATE	TIME	SEASON	ORCHID SOCIETY	SHOW ADDRESS
27-29 August 30 August 31 August 1 September	9.00am-5.30pm 9.00am-9.00pm 9.00am-7.00pm 9.00am-2.00pm	Spring	Sydney	Strathfield Plaza
29-31 August 1 September	8.30am-5.00pm 8.30am-1.00pm	Spring	Hunter Region Combined	Lake Macquarie Fair Mt. Hutton
29-31 August 1 September	Shopping hours	Spring	Cumberland	Castle Hill Shopping Mall Old Northern Road, Castle Hill
29-31 August 1 September	Shopping hours	Spring	Ku-Ring-Gai	Westfield Shoppingtown Hornsby
29 August 30 August 31 August	10.00am-9.00pm 9.00am-5.30pm 9.00am-4.00pm	Spring	Western Suburbs	Riverside Place Birkenhead Point
30-31 August 1 September	8.00am-5.00pm 8.00am-12 noon	Spring	Macleay Valley	Credit Union Plaza Clyde Street, Kempsey
30 August- 1 September	Shopping hours	Winter	Tweed District	Sunny Side Shopping Centre, Murwillumbah
31 August 1 September 2 September	2.00pm-6.00pm 8.00am-8.00pm 8.00am-4.00pm	Spring	Manly Warringah	Mona Vale Memorial Hall Cnr Pittwater & Barranjoey Roads, Mona Vale
1 September	9.00am-4.00pm	Spring	Alstonville	Uniting Church Hall Main Street, Alstonville
1 September 2 September	11.00am-4.30pm 9.00am-4.30pm	Spring	Hawkesbury District	Senior Citizens March Street, Richmond
3-8 September	Shopping hours	Spring	Eastwood and District	Macquarie Centre North Ryde
4 September	8.00pm-10.00pm (6.45pm to bench exhibits)	Spring	St. George (trophy night)	Uniting Church Hall Bay Street, Rockdale
5 September 6 September 7 September 8 September	9.00am-5.30pm 9.00am-9.00pm 9.00am-5.30pm 9.00am-1.00pm	Spring	Newcastle	Wallsend Shopping Plaza Cowper Street, Wallsend
6 September 7 September 8 September	12 noon-9.30pm 8.30am-5.30pm 8.30am-3.00pm	Spring	Upper Hunter	Lancaster's Showroom John Street, Singleton
6-7 September 8 September	8.30am-5.00pm 8.30am-1.00pm	Spring	The Ballina and District	Ballina Fair Shopping Centre Kerr Street, Ballina
6-8 September 9 September	9.00am-7.00pm 9.00am-3.00pm	Spring	City of Lismore	Fountain Room City Hall, Bruxner Highway, Lismore
7 September 8 September 9 September	12 noon-10.00pm (Benching Only) 9.00am-8.00pm 9.00am-4.00pm	Spring	A.N.O.S. Warringah	Mona Vale Memorial Hall Pittwater Road, Mona Vale
7 September 8 September	9.00am-8.00pm 9.00am-4.00pm	Spring	Nambucca Valley	Macksville Scout Hall Partridge Street, Macksville
8 September	8.00am-3.30pm	Spring	Lidcombe Hospital	Upper Recreation Hall Lidcombe
8 September 9 September	10.00am-5.00pm 9.00am-4.00pm	Spring	Blue Mountains and District	Melrose Hall Cnr Park Street and Great Western Highway, Emu Plains

SHOWDATES

DATE	TIME	SEASON	ORCHID SOCIETY	SHOW ADDRESS
10-12 September 13 September 14 September 15 September	8.30am-5.30pm 8.30am-9.30pm 8.30am-5.30pm 8.30am-12.30pm	Spring	Gosford and District	Marketown Henry Parry Drive and William Street, Gosford
10-12 September	9.00am-5.00pm	Spring	Manning River	Manning Hall Manning Street, Taree
10 September	8.00pm-10.00pm	Spring	Eastern Suburbs	St. Lukes Church Hall Cnr Arden and Varna Streets, Clovelly
10-15 September	Shopping hours	Spring	Coffs Harbour	Palm Centre Coffs Harbour Mall, Coffs Harbour
13 September 14 September 15 September	9.00am-9.00pm 9.00am-7.00pm 9.00am-1.00pm	Spring	Port Macquarie	Settlement City Shopping Centre, Port Macquarie
13 September 14 September 15 September	9.00am-9.00pm 9.00am-5.00pm 9.00am-3.00pm	Spring	Campbelltown and District	Campbelltown Square Campbelltown
13 September 14 September 15 September	8.30am-9.00pm 8.30am-8.00pm 8.30am-2.30pm	Spring	Maitland and Coalfields District	Pedar Place Shopping Centre Church Street, Maitland
14 September 15 September	9.00am-5.00pm 9.00am-4.45pm	Spring	Byron District	Mullumbimby Uniting Church Hall, Mullumbimby
14 September 15 September	11.00am-9.00pm	Spring	Berowra and Districts	Uniting Church Hall Alan Road, Berowra Heights
14 September 15-16 September	12 noon-5.00pm 8.00am-5.00pm	Spring	Woodburn	Woodburn Memorial Hall Pacific Highway, Woodburn
15 September 16-22 September 23 September	11.00am-5.30pm 9.00am-5.30pm 9.00am-3.30pm	Spring	The Sutherland Shire	Catts' Nursery 80 Port Hacking Road, Sylvania
15 September	10.30am-4.30pm	Spring	Panania-East Hills (RSL)	Panania Senior Citizens Centre Cnr Anderson Avenue and Peffer Street, Panania
17-22 September	Shopping hours	Spring	Five Dock RSL	Westfield Shopping Town Burwood Road, Burwood
17-22 September	9.00am-5.00pm	Spring	Orchid Society of NSW	Royal Botanic Gardens Sydney
18 September 19-21 September 22 September	10.00am-5.00pm 9.00am-5.00pm 9.00am-4.00pm	Spring	South Coast	Westfield Shopping Centre Figtree
18 September	8.00pm-10.00pm	Spring	Sydney	220 Lakemba Street, Lakemba
20-22 September	Shopping hours	Spring	Tamworth	Tamworth Shopping World Cnr Bridge and Denne Streets, Tamworth
20-22 September	Shopping hours	Spring	Grafton District	Grafton Shopping World Grafton
20 September 21 September 22 September	8.30am-9.00pm 8.30am-5.30pm 8.30am-2.00pm	Spring	Boolaroo	Garden City Cnr Park Avenue and Northcott Drive, Kotara
21 September 22 September	9.30am-4.30pm 9.00am-4.00pm	Spring	Sapphire Coast	Norm Honey Motors 247 Carp Street, Bega
21 September 22 September	12 noon-5.00pm 9.30am-5.00pm	Spring	Shoalhaven	Presbyterian Church Hall Kinghorn Street, Nowra

DATE	TIME	SEASON	ORCHID SOCIETY	SHOW ADDRESS
21 September 22 September	9.00am-6.00pm 9.00am-3.00pm	Spring	Hastings River	CWA Hall High Street, Wauchope
22 September 23 September	12 noon-5.00pm 9.00-4.00pm	Spring	Canberra	Phillip College Launceston Street, Phillip, Canberra
22 September 23 September	10.30am-5.00pm 9.00am-4.30pm	Spring	Griffith	Wade High School Mall Poole Street, Griffith
26-29 September	Shopping hours	Spring	Morisset and Lakes District	Wyong Plaza, Wyong
27-29 September	Shopping hours	Spring	Tweed District	Tweed City Shopping Centre South Tweed Heads
28 September 29 September	9.00am-6.00pm 9.00am-4.30pm	Spring	Casino and District	R.S.L. Hall Canterbury Street, Casino
29 September 30 September 1 October	11.00am-5.00pm 9.00am-5.00pm 9.00am-12.00pm	Spring	Wagga Wagga	Sturt School, Kooringal
29-30 September	9.00am-5.00pm	Spring	Great Lakes	Forster Primary School Middle Street, Forster
6 October 7 October	1.00pm-9.00pm 10.00am-4.00pm	Spring	Albury/Wodonga and District	Albury High School Kiewa Street, Albury
7 October	9.00am-5.00pm	Spring	Southern Riviera	Milton Showground

Queensland

15-18 August	9.00am-5.00pm	Spring	Maroochydore	Maroochydore Shopping Centre Cnr Horton Parade and Ocean Street, Maroochydore
25 August 26 August	9.00am-6.00pm 9.00am-4.00pm	Winter	North Albert and District	Mabel Park State High School Paradise Road, Slacks Creek
30-31 August 1 September	Show times	Spring	Gold Coast	Gold Coast Show Parklands Complex Smith Street, Southport
30 August 31 August 1 September	9.00am-9.00pm 9.00am-5.00pm 9.00am-1.00pm	Spring	North Coast	Civic Centre Currie Street, Nambour
1 September 2 September	8.00am-5.00pm 8.00am-4.00pm	Spring	North Brisbane	Mt Coot-tha Gardens Auditorium
6-7-8 September	8.30am-5.00pm	Spring	Pine Rivers	Aspley Hypermarket
7 September 8 September	8.30am-8.00pm 8.30am-2.00pm	Spring	Noosa District	Cooroy Memorial Hall Maple Street, Cooroy
8 September 9 September	9.00am-5.00pm 9.00am-4.00pm	Spring	Redlands	CWA Hall Off Shore Street, Cleveland
8 September 9 September	8.30am-8.00pm 8.30am-5.00pm	Spring	Ipswich	Bundamba State School Hall Brisbane Road, Bundamba
8 September 9 September	9.00am-5.00pm 9.00am-4.00pm	Spring	Orchid Species	Auditorium Botanic Gardens, Mt Coot-tha Road, Toowong
13-14 September	8.00am-6.00pm	Spring	Lockyer Valley	Scount Den Patrick Street, Laidley
14-15 September 16 September	9.00am-9.00pm 9.00am-5.00pm	Spring	Townsville	City Council Chambers Walker Street, Townsville
14-16 September	9.00am-5.00pm	Spring	Queensland	Mt Coot-tha Botanic Gardens Auditorium Mt Coot-tha

SHOWDATES

DATE	TIME	SEASON	ORCHID SOCIETY	SHOW ADDRESS
14-15 September 16 September	9.00am-9.00pm 9.00am-3.00pm	Spring	Rockhampton	Lawrence Pavilion Rockhampton Showgrounds
13 September 14 September 15 September	7.00am-9.30pm 7.00am-5.30pm 7.00am-12noon	Spring	Emerald	'The Village' Shopping Centre Hospital Road, Emerald
15 September 16 September	9.00am-5.00pm 9.00am-4.00pm	Spring	Aspley	Community Hall Edinburgh Castle Road, Wavell Heights
20 September 21 September 22 September	8.30am-9.00pm 8.30am-5.00pm 8.30am-4.00pm	Spring	West Morton	Booval Fair Shopping Centre Brisbane Road, Booval
20-22 September	8.30am-	Spring	Maryborough	St Pauls Memorial Hall Adelaide Street, Maryborough
21-22 September	9.00am-5.00pm	Spring	West Brisbane	Mt Coot-tha Botanic Gardens Mt Coot-tha Road, Toowong
22 September 23 September 24-28 September 29 September	8.30am-9.00pm 9.00am-5.00pm 8.30am-9.00pm 8.30am-2.00pm	Spring	Darling Downs	TAFE College Neil Street, Toowoomba
22-29 September	8.00am-	Spring	Toowoomba	Harristown High School Assembly Hall
22 September 23 September	8.30am-6.00pm 8.30am-3.30pm	Spring	Eastern District	Wondall Heights State School Assembly Hall
27-30 September	9.30am-8.00pm	Spring	Chinchilla	Chinchilla Civic Centre
28-29 September		Spring	Glasshouse Country	School of Arts Beerwah
29 September 30 September	8.00am-5.00pm 8.30am-3.30pm	Spring	Wynnum Manly District	R.S.L. Hall Melville Terrace, Manly
2-6 October	Shopping hours	Spring	Sunshine Coast	Sunland Shopping Centre Caloundra
3-6 October	Shopping hours	Spring	Mackay and District	Canelands Shoppingtown Mackay
4 October 5 October	8.30am-9.00pm 8.30am-5.00pm	Spring	Ayr and District	Coutt's Mall Queen Street, Ayr
6 October		Spring	Mt Isa	Townview State School
6 October 7 October	9.00am-5.00pm 9.00am-3.00pm	Spring	Childers and Isis District	Isis Cultural Centre Churchill Street, Childers
13-14 October	9.30am-	Spring	Bribie Island	Congeau House Banya Street, Bribie Island

Victoria

1-3 September		Spring	Australian National Flower Show	World Congress Centre, Melbourne
14-16 September	10.00am-5.00pm	Spring	Sunraysia	Greek Community Hall Elizabeth Street, South Mildura
15-16 September	10.00am-5.00pm	Spring	Western District	Scout Hall Cnr. Banyan and Timor Streets Warrnambool
21-22 September		Spring	Bairnsdale District	B.R.E.C. McKean Street, Bairnsdale

DATE	TIME	SEASON	ORCHID SOCIETY	SHOW ADDRESS
22 September 23 September	10.00am-5.00pm 10.00am-4.00pm	Spring	West Gippsland	Art Centre Warragul
22 September 23 September	9.00am-10.00pm 9.00am-4.00pm	Spring	Maroondah	Nunawading Arts Centre Whitehorse Road, Nunawading
22 September 23 September	12 noon-8.00pm 10.00am-4.00pm	Spring	Wangaratta and District	Wangaratta Technical School Hall Greta Road, Wangaratta
28 September 29 September	9.00am-5.00pm 9.00am-2.00pm	Spring	Glass House Country	School of Arts Simpson Street, Beerwah
6 October 7 October	10.30am-5.00pm 10.00am-5.00pm	Spring	Goulburn Valley	Civic Centre Welsford Street, Shepparton
6 October 7 October	11.00am-6.00pm 10.00am-4.00pm	Spring	Australian Native	National Herbarium Hall Royal Botanic Gardens Birdwood Avenue, South Yarra
6 October 7 October	9.00am-6.00pm 10.00am-5.00pm	Spring	Mornington Peninsula	Frankston High School Towerhill Road, Frankston
8-13 October	Shopping hours	Spring	Ringwood	Eastland Shopping Centre Maroondah Highway, Ringwood
13 October 14 October	10.00am-8.00pm 10.00am-5.00pm	Spring	Warringal	Heidleberg Technical High School Cnr Bell Street and Waterdale Road, Heidleberg

South Australia

30-31 August 1 September	10.00am-7.00pm 10.00am-7.00pm	Spring	Northern and Eastern Districts	St Philip's Parish Hall Galway Avenue, Broadview
14 September 15 September	12 noon-8.00pm 10.00am-5.00pm	Spring	Murray Bridge and Districts	John Dohler Hall Swanport Road, Murray Bridge
17-22 September	Shopping hours	Spring	South Australian Orchidaceous	Westfield Shopping Centre Tea Tree Plaza, Modbury
8 October	12 noon-5.00pm	Spring	Riverland	Recreation Hall Loxton Show Grounds

Western Australia

1 September 2 September		Spring	Melville and District	Roy Edinger Hall
8 September 9 September		Spring	Wanneroo	Whitford City Shopping Centre
12 September 13 September 14 September 15 September	9.00am-5.00pm 9.00am-9.00pm 9.00am-5.00pm 9.00am-12 noon	Spring	Western Australia	Belmont Forum Shopping Centre
15 September 16 September		Spring	Mandurah	
16-21 September		12th Australian Orchid Conference		Perth
20-22 September		Spring	Northern Districts	Belmont Forum Shopping Centre
27-29 September			Bunbury	Bunbury Forum Shopping Centre
5-6 October			Augusta and District	

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Australian Terrestrials and Their Relatives

An Introduction
by Ruth Rudkin

Cowslip orchid *Caladenia flava.* — *Photo: Rod Peakall.*

My earliest memories of the bush outside our home in South Perth W.A. were of looking for orchids, which of course we were told not to pick. Donkey orchids were not prized much, but we loved the bright yellow Cowslip orchids, which were reasonably common. More highly prized were Spider orchids, and the Pink and the Blue Enamel orchids.

Time went by, the bush was cleared to make an oval, and I grew up. Many years later, in Victoria, my husband and I and 3 small children went with the Field Naturalists by public transport and by foot to see a patch of Greenhoods. I'll never forget the disappointment I felt, to see these little insignificant flowers. Many years later, in Sydney now, following a gift of a plant of *Dendrobium kingianum,* I joined an Orchid Society and a whole new world opened up. After years of interest in exotics, my interests have turned full circle, to orchid terrestrials, especially since I have the bush at my own backyard, with large colonies of *Cryptostylis erecta* and some *Cryptostylis subulata,* scattered plants of *Thelymitra ixioides, Calochilus campestris, Dipodium punctatum,* occasionally, *Caladenia carnea* and probably others which I have not yet found.

In general, most of our terrestrials grow in sandy soils or laterite not far from the coast. Some grow among grasses or around swamps. Others in scrub or open bushland. In the tropics they are also to be found in rainforests,

Babe-in-a-Cradle *Epiblema grandiflorum.* – *Photo: Rod Peakall.*

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growing in leaf litter. None grow in our dry Centre. As a rule the plants grow from tuberoids, some producing a new one each year, others producing more than one. Some grow in colonies and others as scattered individuals. Some only flower after summer fires, others flower better after fires, while still others are fire inhibited. Often they seem to disappear when the scrub grows too tall.

What disappointed me initially, was that the orchids in the Eastern States lacked the bright colours and the variety of the orchids in the West, with the exception of the Sun Orchids, the Thelymitras, and the Donkey Orchids of the genus *Diuris.* This led me to investigate where the various genera occurred. Then I noticed that terrestrials in northern N.S.W. and Queensland, the Northern Territory and the Kimberleys, were markedly different from those in southern Australia.

My investigations began with the orchids of Western Australia. In the South West of the State is found the beautiful blue "Babe in the Cradle", *Epiblema grandiflorum,* growing in a very restricted region. Other genera restricted to W.A. are the *Elythranthera* or Enamel Orchids, the *Drakea* or Hammer Orchids and *Spiculaea* or Elbow Orchids. In southern parts of the Eastern States the endemic genera are *Burnettia* (Lizard Orchid), *Caleana major* (Flying Duck Orchid), *Glossodia* (Waxlip or Parson in the Pulpit) and *Rimacola elliptica* (Lizard orchard). This last orchid bears some resemblance to the Central American rainforest genera *Psilochilus* and *Triphora.*

The next group of genera are the "Australian Endemics" found across the southern part of the continent. The most notable belong to the genus *Diuris,* the Donkey Orchids. Then there are *Eriochilus* (Parsons Bands), *Leporella* (Fringed Hare Orchid), and the famous Underground Orchids belonging to *Rhizanthella,* found both in New South Wales and the Wheat Belt of W.A.

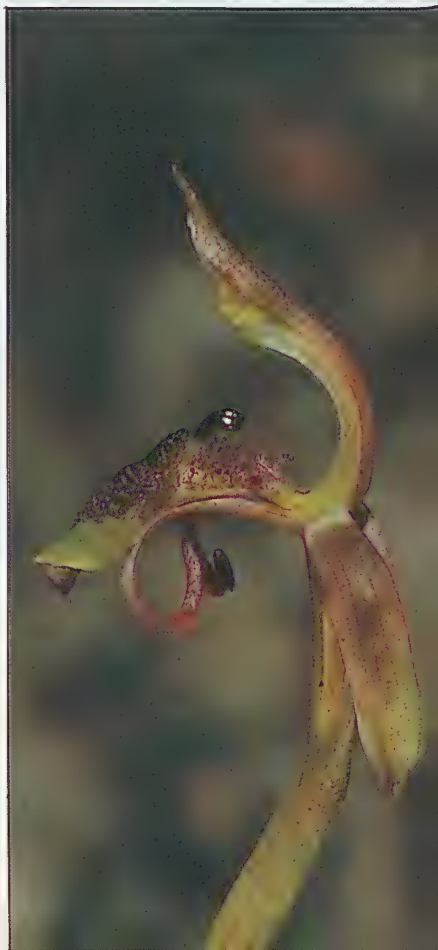
These are followed by some interesting genera which I have put in two sub-groups —

i. Those that occur in Australia and New Zealand only, and
ii. Those that occur in Australia, New Zealand and New Caledonia only, which I like to call "Fellow Travellers from Gondwana".

In the first section are the genera *Chiloglottis,* the Bird Orchids, *Arthrochilus* the Elbow Orchids, *Lyperanthus,* Pink, Red or Rattle Beaks, and *Paracaleana,* the Small and Flying Duck Orchids.

In the second section we have *Pterostylis,* the Greenhoods (with an outlier in Papua New Guinea), *Prasophyllum,* the Leek Orchids, *Calochilus,* the Beardies, *Cyrtostylus,* the Gnat Orchids and *Acianthus* or Mosquito Orchids of which there are 20 species, 8 occurring in Australia, 3 in New Zealand and 11 in New Caledonia with 1 in the Solomons. Finally there is the Horned Orchid, the monotypic *Orthoceras strictum.*

Particularly interesting are the group I call the "Australian Wanderers". There could be some sharp differences of opinion about some members of this group. Firstly there is the genus *Caladenia* with 120 species of which most are in W.A. However there are 4 species in New Zealand one of which is *C. catanata* (or *carnea?*) also found in New Zealand, New Caledonia, Indonesia and Malaysia. What is even more interesting, there are orchid genera in South America which are closely related to the Australian Caladenian group — *Codonorchis, Chloraea, Bipinnula, Geoblasta* and *Megastylis* one species of which also occurs in



New Caledonia. There are the Helmet Orchids, *Corybas* in which there are 100 species, 10 in Australia, 8 in New Zealand, with one species *C. macranthus* to the south, in Stewart Island, the Chatham and Auckland Islands and Macquarie Island, 1 in New Caledonia, some in Papua New Guinea, South East Asia, and Malaysia. Of the 9 species of *Microtis,* 8 are in Australia, 3 in New Zealand, 1 in New Caledonia, 2 in India, and others in Malaysia, China, Taiwan and Japan. The genus *Cryptostylis* have wandered even further. Of the 20 species, 5 are in Australia (the Bonnet Orchids, Cow Orchids), 1 in New Zealand, 1 in New Caledonia, and others in the Pacific region, South East Asia, Taiwan, and *Cryptostylis arachnites* in Sri Lanka! Finally there are the Sun Orchids of the genus *Thelymitra* with 45 species of which 37 or so are in Australia, 12 to 15 in New Zealand, 4 in New Caledonia and 1 each in Timor, Indonesia and the Philippines.

The "Asian Invaders" are those genera in which most of the species are in South East Asia, India, China, Taiwan and Polynesia with only one or two representatives in Australia, and these in the tropical regions. Firstly there are the Jewel Orchids of the Sub-tribe Goodyerinae, *Anoectochilis, Cheirostylis, Hetaeria* and *Vridagzynea. Apostasia,* the most primitive orchid genus, occurs in S.E. Asia, and one species is found in Queensland. The Asian group also includes the Nodding Orchid, *Geodorum pictum* or *neocaledonicum* and *G. densiflorum,* and the pretty *Spathoglottis plicata* and *S. pauliniae.* In addition there are the rare *Tainia,* and the small *Peristylis* genera, and the 2 saprophytic genera, the Giant Climbing Orchid, *Pseudovanilla (Galeola) foliata* and *Gastrodia,* of which 3 species even occur in New Zealand.

Other "Asian Invaders" also invaded Africa, or sometimes it might have been the other way round. For example of the 200+ species of *Eulophia,* of which Australia has 4, Africa has 160. Of the genus *Oeceoclades* of which there are 30 species, 1 is in Australia, and Africa has 12, and of the 65 species of *Nervilia* of which we have 6, Africa again has 12. Of the other genera such as *Calanthe,* represented in Australia by the Christmas Orchid, *C. triplicata,* Africa has only 2 out of 150, and of the 50 species of *Phaius* of which we have 4, Africa has only 1. And so it goes with *Cheirostylis, Hetaeria, Zeuxine, Pachystoma, Didimoplexis* and *Corymborkis.*

Finally there are the most successful of all terrestrials, the "Cosmopolitan Invaders" of every Continent. *Habenaria* has 600 species in Tropical regions, of which Australia has 17, 14 of which are endemic, and Africa 200. Australia has 6 of the 300 *Malaxis* species also found all over Europe. Could some of these be residual populations from a time when Australia had a wetter climate? *Tropidia* and *Goodyera* are also tropical genera in America, Africa and Asia with one and 2 species respectively in Australia. Our Onion Orchid, *Liparis reflexa* is 1 species out of 250 worldwide. *Spiranthes* (Ladies tresses) are found in most temperate regions including New Zealand (S. *sinnsis* as in Australia) but not Africa, and the saprophytic *Epipogium* genus (the European Ghost

From below left to right: Autumn Bird Orchid *Chilogiottis reflexa.* Pink Fingers *Caladenia carnea.* Queen Orchid *Thelymitra crinita.* – *Photos: Rod Peakall.*

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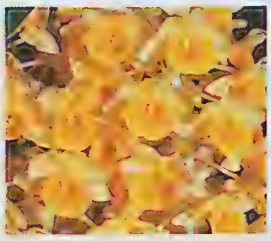

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Orchid and the Australian Leafless Nodding Orchid) is found in most regions but not in New Zealand.

It is interesting to note that although New Zealand shares a number of genera with Australia and New Caledonia, it misses out on all the Asian and Cosmopolitan Invaders other than those mentioned. What is more, the shared Australian orchids are more primitive than the latter. New Caledonia on the other hand, has orchids from both worlds with the exception of the *Caladenia* relatives.

This raises some interesting questions. Just how and when have orchids spread and evolved? Intriguing topics for speculation?

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For Love of the Onion Orchid

by Minnie Korsman (Townsville ANOS member.)

When I first went to live in Lae, in Papua New Guinea in January of 1964, I immediately began to collect orchids. They were easy to collect for several reasons; they grew in almost every tree in the bush, which was then very close to the town in those days; once the locals realized that they could earn money by bringing plants to our doors; then later we acquired a small boat and spent a lot of our free time sailing in the Huon Gulf and there was a wonderful variety of orchids on the small islands, especially in the 'Antelope' orchids, which we then called Ceratobiums, and of course Phillip Cribb has now classified them as Spatulatas.

I collected over a dozen different colour combinations in *Dendrobium lineale* (we then called it *Dendrobium veratrifolium* or 'Morobe Shower') including the very beautiful 'Kui Blue' . . . a form with a very blue, violet-striped lip and pale blue petals, which we found only on this one small island.

As the years went by (we left in December 1972 when my air-pilot husband returned to Ansett in Australia) I acquired as many of these Spatulatas as I could, including all the named varieties from East New Britain, especially the ones that were later all combined as *Dendrobium helix*. I also had *Dendrobium tangerine* which we collected on orchid club safaris in the Kaiapit area, *Dendrobium cochlioides* (fairly rare in our area and I only got mine when one of my house-men returned to his village for the weekend).

Top: *Dendrobium canaliculatum var. nigrescens.* Above: *Dendrobium discolour var. broomfieldii.* *Photos: Mark Webb.*

After Andree Millar made the first Sepik collecting trips, we all had a plant of the Sepik Blue, which we called then *Dendrobium ostrinoglossum* but a later trip confirmed it as *Dendrobium lasianthera,* and we also got *Dendrobium conanthum, Dendrobium mirbelianum* was common but usually self-pollinating, and a few of us had *Dendrobium toffti* which we later learned was *Dendrobium nindii*. Orchid friends in the Port Moresby group sent us plants of *Dendrobium discolor* and it was then that I realised Papua New Guinea shared a lot of plants with North Queensland.

Just before we left Lae, botanical patrols brought in the first plants of *Dendrobium canaliculatum* collected in the Western District of Papua, and though they were too few to be made available to private collectors, I really fell in love with that little orchid. I learnt that it was not one of my beloved Spatulatas, but in the closely allied section of *Eleutheroglossum* (a few of us had access to Dockrill's book Australian Indigenous Orchids) and I was learning all I could about the Australian orchids before I left. We had planned to live in Brisbane and had built our new home, bush house, glass house, and quarantine section against the day I would be under the jurisdiction of Quarantine when I brought my plants down with me. Which I did, some survived Quarantine, and I only just survived myself after I got through all the paper work.

The first thing I did when we were settled was try to find out what I could about *Dendrobium canaliculatum,* and a grower sent me this description *'Dendrobium canaliculatum* is a small growing tropical Australian orchid commonly known as the Tea-tree orchid. A very hardy grower and rewards us with several racemes of up to 30 cm long with

up to 30 flowers about 2½ cm in size, and in various colours, being white at the base and yellow, green, pink and various shades of brown, from fawn to dark brown on the tips. When a bunch of these delightful blooms is collected, a sweet perfume can be a delight, and they are long lasting when picked'.

Well, that did it, I would get some of those plants or die in the attempt. I needed more information as the weeks went by, and I then learnt about the most-loved hybrid in Queensland, *Dendrobium* Gloucester Sands, made by Kenny MacPherson in 1963, and also of his second cross *Dendrobium* Gloucester Dawn (*Dendrobium mirbelianum* x *Dendrobium canaliculatum*) in 1966. It was after I acquired these two gems, that I found out about the second 1966 cross, which was *Dendrobium* Gloucester Sands x *Dendrobium bigibbum* which produced *Dendrobium* Gloucester Gem.

And that did it. I acquired some plants of *Dendrobium canaliculatum* and grew them on totem poles and slabs of both virgin cork and tree fern fibre, and hung them up in the roof of my fibre glass house, where they got plenty of light and air and did survive the winter. However, we decided to move to Bluewater, near tropical Townsville, and though I still grow them on totems and slabs, I hang them on the fence round the swimming pool, not to mention the other plants that I have acquired and are growing happily on paper-barks (*Melaleuca viridiflora*) and other trees around the yard, all very happy and flowering well.

These little gems are easy to grow, but one must try to give them the conditions they naturally grow in. A wet summer and a very dry winter, they do not mind strong light and heat but will thank you for a light shade in the middle of summer. I have found that totem poles and slab culture give the roots the chance to dry out rapidly and you can almost see them growing and as I talk to my plants, I believe they say thank you when I do the right thing.

My next step to understand these orchids, which I hope to make one of the key points in my hybridizing programme, was to try and see their natural habitat. They are found growing from Rockhampton, the Tropic of Capricorn to the tip of Cape York, and then of course over to Papua New Guinea, where they have been found in the paper-barks a few miles from Port Moresby, and in abundance in the swamps in the Western District. The usual, most common form is found just south of Cooktown, and the pale pink form in the Northern Territory, and this one is not as twisted as those on the east coast and is straighter in the petals and sepals, the flower does not open as much and may often have a droopy appearance. Of course, before Clements and Jones, I called this plant *Dendrobium canaliculatum* R. Br. var *foelschei* F. Muell, but I now stand corrected in my ignorance and have advised my plants that they are now *Dendrobium foelschei* (still accredited to F. Muell).

Dendrobium antennatum. Photo: Mark Webb.

We travelled a lot in North Queensland trying to learn as much as I could about this plant because I planned to begin my hybridizing programme using it as one parent with my Spatulatas. We found it (but did not rip them out of their trees) growing in stunted trees along the banks of streams in low-lying areas that usually remain inundated with water for months during the 'wet'. In the 'dry' season the area becomes hot and dusty, and even the trees have been known to lose their leaves. The orchids somehow seem to survive these harsh conditions.

The saddest thing to see is that some station owners burn large tracts of land in the dry to encourage the new grass, and those that are not scorched in the flames, die when the burnt trees finally collapse. Another form of destruction that I find it hard to come to terms with, is that developers go in and bulldoze everything in sight, pile it up in heaps and burn it. Our Forestry Department are rather good at that too, they clear the land of natural bush and plant it with pine or some other trees of their fancy, regardless of the orchids. You have to creep in like a thief and steal a few plants, because if you start to make enquiries, nobody knows a thing about it, and you are up against a blank wall.

I have made many crosses with my Dendrobiums using *Dendrobium canaliculatum* as the 'Father' in the process, as I have had success with that way, but little in the reverse process. I registered one cross *Dendrobium* Dang Toi x *Dendrobium canaliculatum* and called it *Dendrobium* Matilda and it was, I think, a very attractive flower. I have used all forms of *Dendrobium helix* (the ones that we used to call 'Pomio Brown', Mushroom Pink' and 'Talasea Gold'; also *Dendrobiums lineale, D. tangerinum, D. lasianthera, D. antennatum, D. bigibbum.* I used *Dendrobium trilamellatum* (which I thought was *Dendrobium semifuscum,* before the shock treatment of Clements excursions into the private lives of all our orchids). I also used *Dendrobium canaliculatum var. nigrescens* which is now *Dendrobium canaliculatum var. canaliculatum).* Well, I now have a lot of new labels to write.

I have not been dissatisfied with the results of my crosses but realise that I have a lot of work to do with this little 'Onion Orchid' I love so much.

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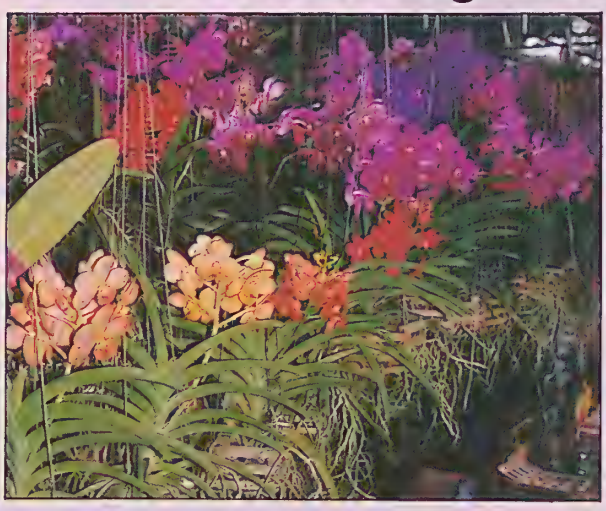

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AUSTRALIAN TERRESTRIALS

The orchids with character

by Graeme Bradburn

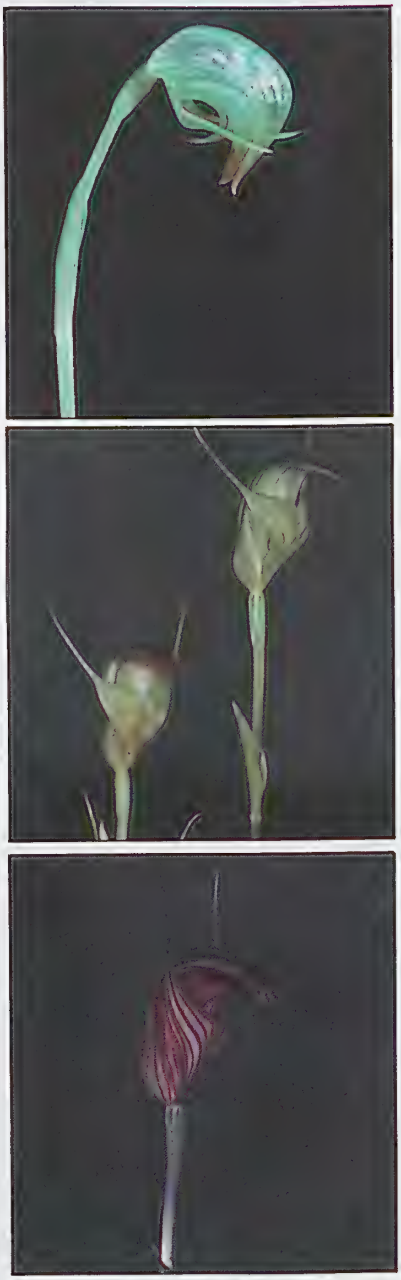
Think of orchids and most people automatically think of exotic flowers, big and vivid in colour. Think of orchids and the images of weddings and occasions, flowers sent for special events like the birth of a child or an anniversary, or that special day of significance. Think of orchids and the remembrance of that strange event called an orchid show where strange people spent hours looking, discussing, criticising or coveting the flowers on show.

Yes, orchids have a definite mystique and when you consider that there are around 700 named species in Australia, you would have to ask yourself where all this beauty is hidden.

Certainly there are some very beautiful species in Australia such as *Dendrobium bigibbum* (Cooktown orchid) which fit the above description. However, my interest is not with these, but with the three-quarters of Australian orchid species which have CHARACTER. The orchids with character are often overlooked terrestrial orchids, small, diverse, flowers with a myriad of shapes and colours: each terrestrial genus and species has its own personality.

Within the bush hinterland of Sydney, Newcastle and Wollongong hide over 200 species of terrestrial orchids, and all too often they are overlooked (or stepped on) by bush walkers or destroyed by 'development' without a moments thought. The following is the way I think of some of the more common genera and species found in Sydney's bushlands and adjacent national parks.

The genus *Pterostylis* is my favourite, usually referred to as GREENHOODS (although not always green), and they are fast increasing in popularity with native growers, since many of them are easy to grow and propagate. It is the flowers which are the real interest, as they are designed by nature to attract insects for the purpose of pollination, which become the vectors for cross pollination. Many of the species flower from small rosettes of leaves, flower in winter or spring, and being deciduous, become dormant during the summer.



Top: *Pterostylis nutans*. Centre: *Pterostylis baptistii*. Above: *Pterostylis coccinea*. — *Photos: Mark Webb*

Pterostylis nutans (Nodding Greenhood) is extremely common and typifies the rosetted greenhoods with its graceful nodding habit, clear green colour, and distinctively striped labellum, flowering in winter and early spring. More particular in habit is *Pterostylis baptistii* (King Greenhood) which is found commonly near coastal swamps. It is one of the largest of the greenhoods, and it is a magnificent site to see hundreds flowering together in late spring.

Many of the greenhoods come up as rosettes when not flowering, but when the weather is ideal and conditions good, they flower from stems which usually have a few leaves. These are sometimes referred to as the cauline *Pterostylis,* and they typically flower in late summer to early winter. They are highly specialised and are quite at home surviving on barren hillsides, sub-alpine forest and coastal heathland. There are many striking species, including *Pterostylis coccinea* (Scarlet Greenhood) which varies in colour from green to brilliant reds and maroon, and is found in most mountain areas where volcanic soils exist. *Pterostylis grandiflora* (Cobra Greenhood) is extremely common on mossy sandstone rockledges, and is a favourite with children when displayed. It flowers from May to August.

Western Australia is associated with wildflowers and yet in many areas, and when one thinks of the genus *Diuris,* one automatically thinks of their most threatened species, the beautiful *Diuris purdei,* which is in dire danger with urban development. However, around Sydney, where the forest is more open, the genus *Diuris* can easily be found, and nothing can be more impressive than a field of *Diuris punctata* (Purple Donkey Orchid). Close inspection of such an area would provide hours of pleasure in examining the diversity of colour and the shapes of every flowering plant. Most of the *Diuris* found around Sydney are yellow with *Diuris maculata* and *Diuris sulphurea* being the most commonly found.

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beneath the tall eucalypts.

The *Cryptostylis* are particularly striking, especially *Cryptostylis erecta* with its purple striped bonnet and *Cryptostylis leptochilla* (Small tongue orchid) with its labellum so unusually featured and coloured that no description could do it justice.

In autumn not only are the cauline *Pterostylis* flowering but the miniature *Genoplesiums* (previously known under *Prasophyllum* and referred to as midge orchids) which are extremely small and can only be truely appreciated when blown up in a photo.

In winter the rosette *Pterostylis* dominate, but are accompanied by *Corybas* (Helmet Orchids) and *Chiloglottis*, and these orchids are full of character. Helmeted *Corybas* look like little soldiers or safety conscious bike riders. *Chiloglottis* are fascinating in the way that each species has developed a detailed and complicated labellum to attract wasp pollinators.

Spring is the season for *Diuris,* but for contrast the blue sun orchids of the genus *Thelymitra* are a must for orchid lovers. Not only are the species tall and multi-flowered, but some like *Thelymitra ixiodes* are heavily scented with a distinct vanilla fragrance. During the late spring and early summer, the bearded men of the orchid world appear, the species of the genus *Calochilus.* I won't attempt to describe them, but after you read this, do yourself a favour and search out a photograph of *Calochilus campestris.* What other genera of orchid do you know that has such a combination of colours, textures and shape?

This could be an endless discussion of Sydney's terrestrial orchids ... *Acianthus, Caladenia,* and *Caleana* and some of the other genera which add to the amazing diversity of terrestrial species. The only way to really appreciate these special little Australians is to go out to your local bush and look for them. If you decide you would like to grow them, join a local ANOS group and take advantage of their tuberoid banks, which have a large number of species and are supplied at very nominal cost.

Please do NOT collect from the wild as many terrestrial species are not suitable for cultivation. There are some that have become very rare, and are now known from a very few limited sites. If you find a special plant, leave it there and contact ANOS and a conservation officer will be there as soon as possible to advise you, and see that you are helped on your way to be a terrestrial grower.

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Some Australasian Orchids

The Botanical Travellers that go from Cape York to China by way of Papua New Guinea.

by Andree Millar

Although I had been collecting orchids in New Guinea and in the Papuan side of the island since 1947, the term 'Australasian orchids' had never really registered with me until one day in Sydney, September 1969, after I had read my paper on 'The Botanicals of New Guinea', and I was sitting outside the lecture room with Alick Dockrill. He had just received his first ten copies of his 'Australian Indigenous Orchids', which will always be the best-loved book on the Aussie native species, and he gave one to me, with a much-cherished inscription, on the fly-leaf.

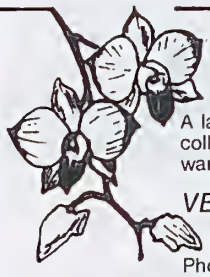
That night, back in the hotel room, still on a high after the honour of speaking at the 6th World Orchid Conference, I sat down with Marj Purnell, and together we studied the text and drawings. We were astonished to discover that our P.N.G. orchids were not so select as we in our conceit had thought they were ... Alick had recorded nearly fifty species which were indigenous to both countries. I made up my mind there and then that I would try to find them all and add the information of their ocean-hopping habits to my field notes.

One little conceit that I still hold in my memory is finding the first two with dual nationality after we came back from Sydney. On my first day-field trip near Chivasing Village, a few miles out of Lae, I found (as usual) plants of two of our commonest, but much-loved species, and had a word with them. On a coconut palm in the village garden, I met up with *Dendrobium insigne,* which Schlechter recorded in flower at the Waria River in 1908, and which Blume notes from the Torres Strait Islands in 1855. Later on the same day I found a third one which we knew as *Sarcochilus morrei,* beautiful in flower but not exactly wanted by the perfume industry. This plant was actually described as *Thrixspermum moorei Reichb. in 1880* in the Gardeners Chronicle, and then came Schlechter in 1908 and 1909 and gave it the name we knew it by, 'as a new combination'. The poor thing had nine other names before M. Clements, B. Wallace and D. Jones came along in 1989 and scrubbed the lot, giving it its present new name of *Rhinerrhiza moorei,* also a new combination.

I did make careful specimens on that day in late 1969 but I admit that I had a little talk to them about being traitorous expatriates. However, as the years went by, we found a lot more of our orchid links, especially in the terrestrials and lowland orchids. One I remember very well is *Corymborkis veratrifolia,* one only that I found on that expedition, growing in the deep mulch of the riverine forest off the Fly River in southern Papua, but which I learned grew in Australia from the Burdekin River to the tip of Cape York.

Calanthe triplicata as she is now (and actually was in 1907) once had more names than two pages in the Japanese telephone book has been put in her place as such by Mark Clements. We, in our ignorance, rejoiced when we found her, but was variously recorded as *C. veratrifolia* and *C. orthocentron,* was always found near the forest creeks and damp places, and of course we now know, she has more homes than the richest movie star, ranging from Australia, through New Guinea, Indonesia, Malaysia, to India and as far eastward as China. Another lovely, large ground orchid with the same world wide distribution is *Phaius tankervilliae,* and has, sad to say, been as heavily and carelessly collected in New Guinea as it has been in Australia.

One by one, I began to realise that so many orchids I thought were purely Papua New Guineans, were seasoned ocean travellers, many beginning in Australia. *Pholidota imbricata,* the correct name of the one we called *P.*



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pallida, was common on the cliff faces above the Wau road to Kaindi and a familiar friend in most of the lowlands, *Dendrobium bifalce,* the commonest and sturdiest of the Latourias, and almost always you would find plants in flower from the lowlands to the islands off the coast, is also at home in the Daintree River area and is found up to Cape York, Australia's only authentic Latouria. *Dendrobium luteocilium,* a joy in flower, although they are short-lived, compensates for it by flowering four or five times a year, and is usually found on the islands, especially on rock faces; *Flickingeria comata,* is a very common lowland plant, sometimes nearly a metre tall in New Guinea, has delightful fringed small flowers, and is another one that takes off from the Cape York Peninsula and heads for Indonesia and Malaysia.

One by one, we found many of the plants listed in Dockrill's book, but at first not those that are so essentially Australian, until one day some men staggered in with armfuls of plants they had collected in the logging area, with tight clusters of flowers on the leafless stems, quite unlike anything we had seen to that date. The flowers were pink with a vivid green labellum, and without a name for it, we followed the kids' nickname, the Jellybean Orchid. Specimens sent to Lae came back with the name *Dendrobium hollrungii,* named after its collector who found it flowering in September 1887 and was named by Schlecter after he had also found it years later, again in the month of September, 1908, in coastal rain forest in from Bulu Village Astrolabe Bay, where we did indeed find it again years later. Schlechter described his flowers as whitish with a dark green labellum. Many years later (1966) we found the very striking form on the Bensbach River, pure white with a dark green lip, but by this time we knew that our jellybean orchid was indeed the Bottle-brush orchid of Australia, and properly called *Dendrobium smilliae.*

Of course, on field work in Papua and the Western District, we had found *Dendrobium discolor,* although we had known it from around Port Moresby for many years, and it was in those days, *Dendrobium undulatum.* These first D. discolors were commonly called the Golden Orchid, and were medium sized plants, usually between half a metre and a metre tall, size, flower colour and shape very variable. It was not until we got to work on the Western District rivers, the Fly, the Bensbach and the Oriomo that we found the largest and most beautiful plants, in unbelievable shades of yellow and gold, to almost bronze with labellums from pinks through all shades of mauve to purple and some with gold-edged green. There were plants well over two metres tall, growing in huge clumps on the trees hanging over the rivers with the scent of a thousand spices.

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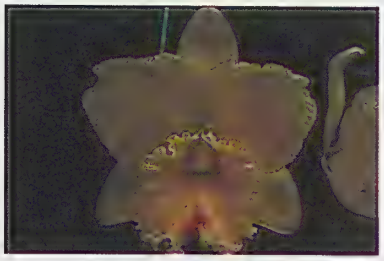

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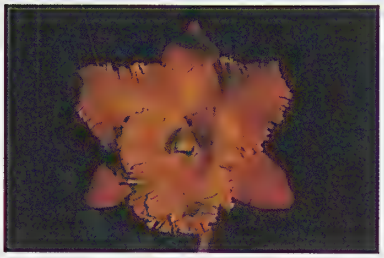

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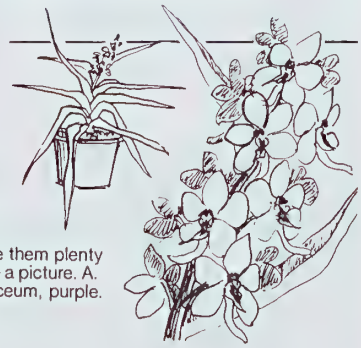

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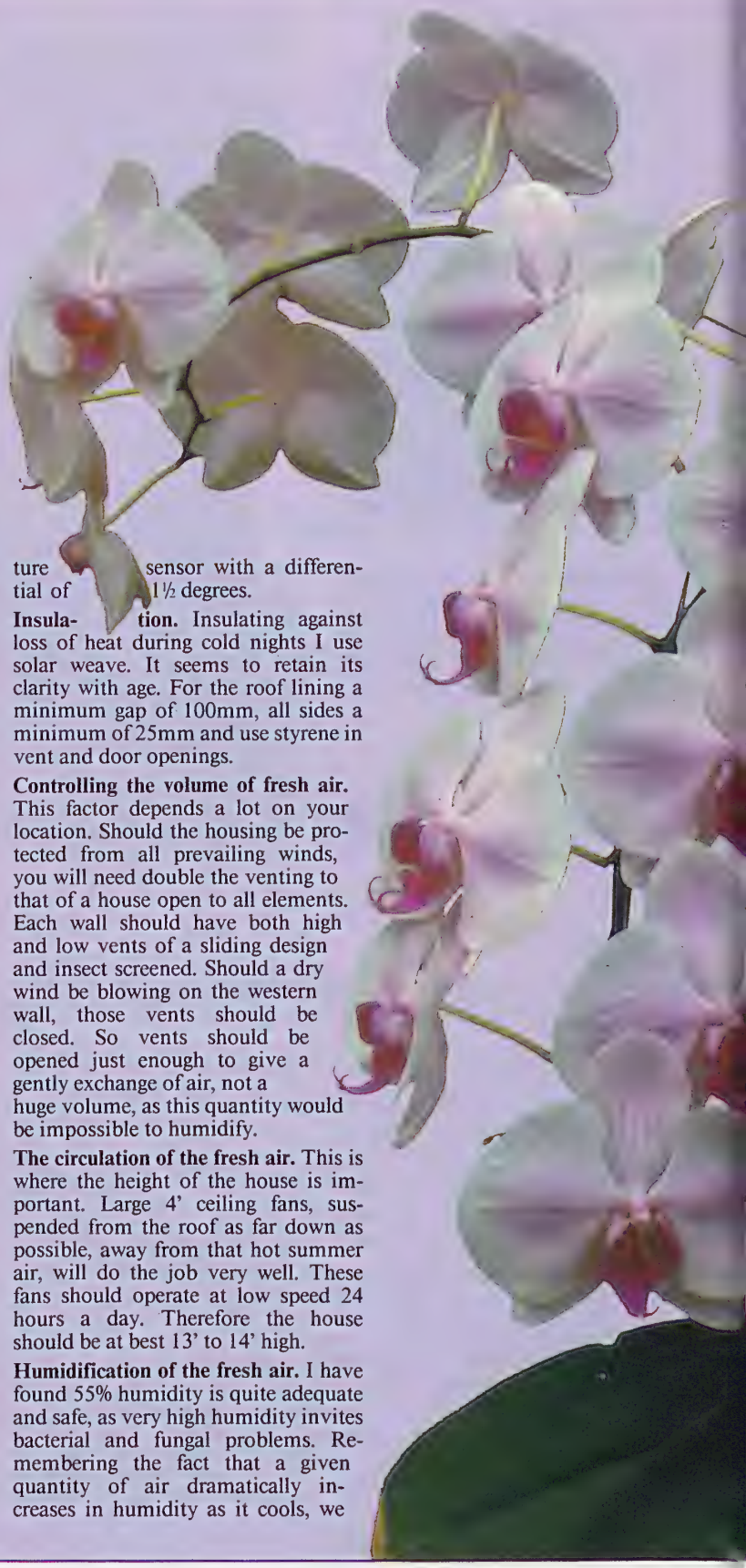
The most important factors in growing *Phalaenopsis* are:

1) the environment you create for them.
2) water given to the plants only when required.
3) hygiene.
4) Lastly fertiliser.

Environment. This concerns light, temperature (maximum and minimum), controlled volume of air change and subsequent humidification of the fresh air, if required, during the daylight hours, circulation of that air, the ability of housing to rid itself of excess humidity before nightfall. These items have to be created and as you may well imagine some locations make this task rather difficult but not impossible.

Light. *Phalaenopsis* grow well under low light conditions 800 to 1200 ft. candles, the lower the light the longer the new leaf will grow and the higher the light the wider the leaf will grow, resulting in approx. the same surface area. But we must keep this light constant throughout the seasons. This is why roofing is important. I use Humes "Tuff-Light" because of it's lasting qualities, although I think fibre glass gives a better quality light if changed every 4 to 5 years. Suspended 40 cm. above the roof is a layer of 50% shade cloth which gives me good winter light and assists in keeping up winter temperatures. Come summer when light and heat are getting more intense I roll over another layer of 50% shade (which gives me a total of 70% shade. So light remains fairly constant year round).

Temperature. For best results a maximum of 33 degrees Celcius is desirable. If this level is hard to achieve a few exhaust fans, mounted at roof level, will help control the excess heat. These fans should be operated by a temperature sensor, set at 29 degrees Celcius. It is better to get rid of the hot air rather than trying to cool it. An evaporative cooler, running at high speed will only provide a drop of 1¼ degrees Celcius in a house 16' x 20'. Minimum temperature of 15 degrees Celcius is o.k. To achieve 17 degrees Celcius, the extra 2 degrees will almost double your winter power bill. The advantage of 17 degrees is that you will get an earlier spring flowering and your small seedlings will grow slightly faster. I heat by the use of electric oil heaters operated by an electric solenoid which is controlled by a temperature sensor with a differential of 1½ degrees.



Insulation. Insulating against loss of heat during cold nights I use solar weave. It seems to retain its clarity with age. For the roof lining a minimum gap of 100mm, all sides a minimum of 25mm and use styrene in vent and door openings.

Controlling the volume of fresh air. This factor depends a lot on your location. Should the housing be protected from all prevailing winds, you will need double the venting to that of a house open to all elements. Each wall should have both high and low vents of a sliding design and insect screened. Should a dry wind be blowing on the western wall, those vents should be closed. So vents should be opened just enough to give a gently exchange of air, not a huge volume, as this quantity would be impossible to humidify.

The circulation of the fresh air. This is where the height of the house is important. Large 4' ceiling fans, suspended from the roof as far down as possible, away from that hot summer air, will do the job very well. These fans should operate at low speed 24 hours a day. Therefore the house should be at best 13' to 14' high.

Humidification of the fresh air. I have found 55% humidity is quite adequate and safe, as very high humidity invites bacterial and fungal problems. Remembering the fact that a given quantity of air dramatically increases in humidity as it cools, we

Cultivation and Housing of *Phalaenopsis*

by Noel Heyden.

P. Ruffec — *Photo: Noel Heyden.*

should not attempt to humidify under 20 degrees Celcius. If you use a waterjet type make sure a low volume high pressure spray system is used under the benches, so that very little or no excess water will be on the floor at nightfall. A good and well adjusted humidification system should cease to operate approx. 2.30 pm in winter and 3.30 pm in summer, leaving a well ventilated house a few hours to rid itself of excess humidity caused by the cooling down of the air inside the house. I have paved the floor of my *Phalaenopsis* house with bricks so that by nightfall the floor is dry. The risk of bacterial and fungal attack on plants is very high if you have a soggy, badly drained floor, particularly in winter when the vents are closed for the night.

Potting. The safest potting medium is a good hard bark that has been soaked in water for at least one week. Usually a cupful of prediluted dolomite is sufficient for a small rubbish bin and I advise you to add approx. ½ ml per litre of Physan or Consan 20 or Guardex. This additive will prevent bacteria from making the bark feel slimy after having been soaked for a considerable time. Discard all bark that has sunk to the bottom of the container. I feel p.H. correction is unnecessary as with continued watering and fertilising the bark should acquire the p.H. of those liquids.

Pots ranging from 120mm to 200mm differ greatly in the time needed to dry out so I therefore suggest potting the smaller pots denser than the large pots. Very hard charcoal and styrene foam mixed with the bark help to dry the larger pots out. The plants potted correctly should require watering at the same period irrespective of the size of the pot.

When a plant is removed from a pot do not shake or remove the bark adhering to the roots. If you have too many roots for easy potting remove those old roots at the base of the plant. Twist the remaining roots and position in the centre of the pot. Add selected medium and apply thumb pressure to the medium at the extreme edge of the pot only. The pressure exerted will be transferred to the centre of the pot without undue damage to the roots and yet give the medium close contact to the roots. Do not water plant for 4 or 5 days, but mist the leaves regularly, provided the weather is fine.

Repotting. Mature plants can be repotted throughout the year, however better results are obtained when done during September and October. Seedings are best potted in the spring.

Watering. This operation in my opinion is part of good hygiene. Most authors frown on allowing water to wet adult plants. Dust, fertiliser salts, bacterial and fungal spores settle on the leaves and only need slightly damp conditions to be effective. Remove these items and the problem of infection virtually ceases to exist. Watering should be done prior to the pots drying out, in my conditions approx. 4 days. I lengthen the time by adding the num-

ber of wet days I may have had since the last watering.

Water only on a good day, early in the morning. Make sure to wash under and on top of the leaves well and then drench the pot. Spider mite won't exist if you do this regularly. After watering increase the speed of the overhead fans for a few hours to make sure the crowns and leaves have dried off. Should the weather deteriorate after watering, to offset the chance of crown rot, spray with Physan, Consan 20, Algequat or Guardex at the rate of 1 ml per litre, into the crown region only. Do not make a practice of spraying the whole plant, particularly when new leaves are growing.

Fertiliser. I have experimented with fertiliser for many years, but apart from finding out what brands to avoid I've come to the conclusion most brands do the same job. I use a high nitrogen in bright weather and a low nitrogen in dull times, year round. If calcium and sulphur are in low quantities in your water supply use a fertiliser with those elements. For instance Phostrogen has calcium (a good dull weather fertiliser).

Fertilise immediately after watering at slightly more than half the recommended strength, drenching the pot. Avoid as much as possible from wetting the leaves of medium size to adult plants. For some unknown reason small plants don't have the bacterial problems that larger plants can have so fertilise over the top of the small seedlings.

I fertilise every second watering with inorganic fertilisers.

Fungicide and bactericide. I don't use any as a preventive. Good fresh air and cleanliness does the job.

Insecticide. Only if necessary, I recommend Supracide, however protective clothing must be worn.

Bacterial infection. Very occasionally I strike this problem, but I'm always on the look out for a brown wet looking spot. Should the infection be on the leaf, cut out that portion back to where leaf colour is normal and paint around the area with raw Listerene or Dettol not fungicide. If the infection has started in the crown, start cutting from

Top left: *Phalaenopsis* Tosca x *Phalaenopsis* Frisson. Left: *P.* George Molar 'Sunshine'. Below: *P.* Queenslander Queen 'Tweed Coast' — *Photos: Noel Heyden.*

the top, leaves and all and finish only when you have reached normal tissue. Drench the remainder with Listerene or Dettol and don't water the plant for 5 days. At least the remainder of the plant will produce a plantlet which will grow rapidly.

Flowering. If some of my favourite *Phalaenopsis* throw out a spike in mid summer I immediately break them off because flower count and size is not the same as a spring flowering. I'll let a few flower but only a few. Another disadvantage is that you will forego the growing of new leaves and should the plants concerned throw another spike for the spring they will be badly stressed. One spring flowering a year is all I ask and it's sure to be a good one, because the plant has had 5 or 6 months to grow new leaves and accumulate strength to prepare for its next flowering.

I always cut off spikes after 2 months or as soon as any one flower looses its lustre. It can't be benched at a show and is needlessly taxing the plant.

Should you be keen to see the flower of a small seedling allow the spike to grow and then terminate it in front of the first bud 7 days after the bud opens. You will see the flower's potential, then remove the spike. The plant will have been stressed very little.

If you have a clone with a good flower that always drops a few buds, try cutting the spike off below the first flower and let an auxillary spike develop. This will delay flowering for 6 to 7 weeks and chances are you will have success. If bud drop persists, dump the plant.

I don't believe in stressing plants to achieve early flowering, no doubt it works, but you may lose some of the lower leaves and the plant is in no condition to start flowering. The result is a substandard flowering. I have found some *Phalaenopsis* which are late to develop spikes will naturally spike earlier as the plant matures. So let nature take its course and most importantly enjoy your plants.

Noel Heyden
20 Towners Ave
Bogangar NSW 2488

Top right: Toowoomba Orchid Spectacular 1989. *Phalaenopsis* shown by Noel Heyden. Right: *Phalaenopsis* Abendrot x *P.* Sampson — *Photos: Noel Heyden.*

Cultivating Terrestrial Orchids in Victoria

By Helen Richards

In August, 1968, 25 people attended the inaugural meeting of the Australasian Native Orchid Society, Victorian Group, held at the Victorian Railways Institute, Flinders Street, Melbourne, where office bearers and committee were elected. The Society developed strongly, membership grew, and within two years the need was evident to develop a means of distributing, as widely as possible, excess tuberoids of terrestrials grown by members, and so the first Tuber Bank came into being. The list of available species (22) was published in the January 1971 Bulletin, and a total of 400 tuberoids were subsequently distributed.

Have we progressed in growing terrestrials in the last 20 years? Let's look at the Tuber Bank records of A.N.O.S. Vic Group Inc. for 1989/90. John Jeanes, who does a marvellous job running the Tuber Bank, supplied the following figures — 29 members donated 10,159 tuberoids of 78 species and natural hybrids plus 4 man-made hybrids. These were distributed to 99 members, with 1,022 out of 1,502 orders being filled.

Yes, I think we have come a long way, and what has contributed to these improvements? We have a much larger membership of course, and we have learnt much more about growing terrestrials during those years. We have recorded our successes and failures, we have shared our knowledge and worked together. We have recorded what we have learnt over the years in the Society's Bulletin and in a cultivation book which was first written in the early 1970s, which has been re-written several times and greatly enlarged over the years. Any new grower can have instant success now with many species by following the detailed cultivation notes in the current book, "Cultivation of Australian Native Orchids" second edition.

Let me tell you briefly how we go about cultivating terrestrials. We firstly advocate that a potential grower understands the life cycle of the orchid that they wish to grow. The majority of Australian terrestrial orchids have an annual life cycle which has an underground dormant stage over summer and an actively growing stage during autumn, winter and spring. During this growing stage, the underground food storage organ, termed a tuberoid, shoots, forming leaves and/or flowers above ground and few roots below ground. The plants grow in conjunction with mycorrhizal fungi in the soil which act as food gatherers for the plants and which also are necessary to germinate orchid seed. As the season progresses, mature plants flower which may or may not be pollinated, Seed is dispersed and by late spring the above ground parts of the plants dry off and wither away. Underground, the plant has made one or more new tuberoids to replace the old spent tuberoid, which dries up by late spring leaving the new tuberoids to remain dormant over summer, ready to shoot at the onset of autumn rains.

A colourful form of *Corybas hispidus*, an autumn flowerer — *Photo: Jeff Jeanes.*

The potting mix suggested for Melbourne growers should be suitable anywhere, remembering however that a solid (translucent) roof is recommended to control watering. Right from the early days, bush soil was found to be unsuccessful and as growers experimented, they found that whatever they used, it must *drain freely*. A simple basic mix recommended for everyone to start with comprises:

coarse sand 2 parts,
loam 1 part
leaf mould 1 part
buzzer chips 1 part (from hardwood or softwood, but not particle-board, western red cedar or treated pine.

Pine bark chips could be substituted if necessary)
plus 1 dessertspoonful blood and bone and 1 dessert spoonful of garden lime per 9 litre bucket of mix.

Just about anything can be grown in this mix and it can be varied by adding extra coarse sand for species from drier areas or extra leaf mould for species such as *Corybas* which grow in moist leaf-litter areas.

Pots must be placed in an area which is well ventilated (e.g. shadehouse) preferably with a translucent solid roof. Melbourne can have long, wet winters and other parts of Australia can have prolonged wet periods or severe unexpected storms so wherever you live, I feel that a solid roof is necessary for best culture. If few pots are involved, areas like under the eaves, on verandahs etc can be found and are suitable. Don't put pots on the ground, where slugs and snails will eat the plants. These introduced pests are one of the main reasons why it is difficult to maintain easy-to-grow species in cultivation in a suburban garden. As fast as they grow, they are eaten and one has to have a good memory to keep a garden area adequately baited.

There are two more points which are critical in the cultivation of terrestrial orchids — watering and light. Plants must be kept damp but not overwet during their growing season — autumn to late spring. In practice, this means watering about every week in Melbourne in autumn while the weather is warm, reducing down to fortnightly or less during winter when it is cold and damp, and increasing frequency again as the weather becomes warm in spring. Special care must be taken watering *Caladenia* and 'rufa' group *Pterostylis* as they are prone to rotting in wet mixes. Only water when necessary, when the mix is starting to dry. By mid to late spring, by which time leaves start to dry and brown off, watering is tapered down and ceased as it is important that the dormant tuberoids remain dry over summer to prevent tuberoids dessicating especially if pots become very hot.

Light is another important factor. *Thelymitra* species, the Sun orchids, must be grown in bright conditions — 25% shade. 'Rufa' group *Pterostylis* also require bright conditions as do *Diuris* species. These species not only require adequate light to flower, but to grow well also. Coming down the light

Acianthus exsertus another autumn flowerer — *Photo: H. Richards.*

An attractive variegated leaf form of *Pterostylis nutans* — *Photo: H. Richards.*

Below: *Diuris lanceolata,* a colourful spring display — *Photo H. Richards.*

Late spring, Thelymitra nuda on a warm, sunny day— *Photo H. Richards.*

scale, *Caladenia* require 25-50% shade, the rest of the *Pterostylis, Acianthis, Chiloglottis, Cyrtostylis* all do well in 50% shade. Save the shadiest corner for *Corybas* and they grow well with extra humidity, e.g. in a glasshouse, or placed on a solid bench over damp scoria or similar.

It is not possible in this brief article to explain more than the basics necessary for the successful cultivation of Australian terrestrial orchids. The rest has all been written, as much as we know to date, in "Cultivation of Australian Native Orchids", 2nd edition, published by A.N.O.S. Vic. Group Inc. I recommend it to any grower of terrestrial orchids, and as a co-author, I would welcome any feed-back from users regarding points that are not clear, inadequacies and suggested improvements. The book is available from many orchid societies, or it may be ordered from the Secretary, A.N.O.S. Vic. Group Inc., P.O. Box 285 Cheltenham 3192, Vic. for $9.95 + postage $1.70.

Have private growers played a part in conserving terrestrial species, have we been practising "conservation through cultivation"? I have no doubt in my mind that the dedicated enthusiasts play an important role in this area. Private growers not only supply the Tuber Bank in Victoria, but tuber banks in N.S.W., S.A. and shortly there will be one in W.A. Thousands of tuberoids are therefore propagated and donated annually to these distribution points around Australia. Do any botanical institutions or universities propagate species on a scale like this? Perhaps it is not their role. Whose role is it? The more people who become either very involved or just grow a few pots of easy-to-grow and propagate species, and who are prepared to donate excess tuberoids to a tuber bank, the better off our wild growing plants will be. We have a long way to go before the supply exceeds the demand. Exotic orchid growers, how could you resist the charm of a pot or two of *Pterostylis* or *Corybas* nestling amongst your Cymbids or Paphs?

A final reminder: **Native orchids are protected plants in Australia and should never be collected from the wild unless their habitat is in danger of destruction and even then, written permission from the owner of the land or relevant authorities, must be obtained.**

Mrs Helen Richards,
39 Ryland Ave,
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FROM THE REPUBLIC OF CHINA

Paphiopedilum Awards

by Buddy F. Mark

A species of the genus *Paphiopedilum* — *Paphiopedilum venustum* 'Mark' was first awarded a HCC by the former Orchid Society of Taiwan (T.O.S.) in 1975. Ten years later, after the People's Republic of China made it possible for western botanists to study the endemic flora, it quickly became known that many plants from those areas were still to be discovered by science. The rediscovery of *Paphiopedilum micranthum* and the new discoveries of *Paphiopedilum armeniacum* and *Paphiopedilum malipoense* were already very encouraging.

Late in 1988, a famous species *Paphiopedilum micranthum* was awarded an AM (85pts.)/OSROC and is named in honour of the United States President Mr George Bush — *Paphiopedilum micranthum* 'Bush' AM/OSROC (natural spread is 6.7cm). Another species of *Paphiopedilum armeniacum* was also awarded an AM (83pts.)/OSROC early in 1989 and is named *Paphiopedilum armeniacum* 'East

Above: *Paphiopedilum* Saint Swithins. Below left: *Paphiopedilum* Kevin's Wine 'Cute'. Below right: *Paphiopedilum armeniacum* 'Sunshine'. — *Photos: Buddy F. Mark.*

Asia Beauty', AM/OSROC (natural spread is 10.3cm), whereas the *Paphiopedilum malipoense* was first awarded a HCC (77pts.)/OSROC (natural spread is 11cm).

During the International Orchid Show, which was held from March 29 to April 6, 1990, a primary hybrid between *Paphiopedilum rothschildianum* and *Paphiopedilum philippinense* (*Paphiopedilum* St. Swithins) won a grand prize along with others such as *Pot.* (Tapestry Peak X Golden Slippers) 'Golden Fantasy' HCC/AOS AM/OSROC and *Phalaenopsis amabilis* 'Sheung Pun', CCM/AOS AM/OSROC.

This hybrid, made by Statter in 1901, *Paphiopedilum* Saint Swithin was shown and delighted the orchid growers of Taiwan. Several primary hybrids were awarded an AM and HCC honours on April 8 and April 16, 1990:

1. *Paphiopedilum* Saint Swithins.
   AM (88pts.)/OSROC
   (natural spread is 28cm)
2. *Paphiopedilum* Saint Swithins 'Chen Samir', HCC (77pts.)/OSROC (natural spread is 21cm)
3. *Paphiopedilum* Kevin's Wine 'Cute',
   HCC (78pts.)/OSROC
   (natural spread is 10.5cm)
4. *Paphiopedilum* Supersuk 'C.K.',
   HCC (77pts.)/OSROC
   (natural spread is 13.3cm)
5. *Paphiopedilum armeniacum* 'Sunshine',
   AM (88pts.)/OSROC
   (natural spread is 11cm)
6. *Paphiopedilum rothschildianum* 'For C.K.',
   AM (83pts.)/OSROC
   (natural spread is 22.5cm)
7. *Paphiopedilum concolor* 'Chen Samn',
   AM (82pts.)/OSROC
   (natural spread is 5.4cm)
8. *Paphiopedilum rothschildianum* 'Ta Tung',
   HCC (78pts.)/OSROC
   (natural spread is 22cm)

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Top: *Paphiopedilum concolor* 'Chen Samn.' Left: *Paphiopedilum* Supersuk 'C.K.' Above: *Paphiopedilum rothschildianum* 'For C.K.' *Photo: Buddy F. Mark.*

Holiday Afterthoughts on *Cymbidium* Culture

Part 1

by Peter North-Coombes

TOPICS

Potting Mix Treatment — Iron and Zeolite
Slow Release Fertilisers and Salting
Role of Mycorrhizae
Iron and Magnesium Fertilisers

INTRODUCTION

I am committed to the use of slow release fertilisers for Cymbidium growing on a hobby scale. There are some traps in this for the unwary. These post-holiday notes sum up my current thinking on the subject.

Last year I travelled overseas for two months from early November. I was concerned about the effect of the coming high temperatures and hot north winds on my collection. The fact that severe salting problems had been experienced in previous years bothered me. This occurred while using a fertiliser program based on Osmocote® slow release fertiliser supplemented with a liquid feed variation of the Johnson formula (North-Coombes, 1988).

Adult Cymbidium with collar rot symptoms (Colletotrichum) – *Photo: P. North-Coombes.*

PRE-HOLIDAY PREPARATION

Potting Mix Treatment

More than half the Cymbidiums needed repotting in spring 1989. A slightly less open mix was selected so that the repots would retain a little more moisture than usual over the critical summer period.

(a) **Iron**: The better quality pine bark mixes are treated with iron(Fe), often as ferrous sulphate($FeSO_4$), during the composting process. From 600g $FeSO_4$ per cubic metre to a maximum of 3000g are recommended by Handrek (1989).

When $FeSO_4$ is mixed with moist pine bark, the bark turns black as the iron reacts with tannins and is changed into oxides. The bark is able to hold the Fe in this way for future use by plants. Hardly any Fe leaches out after this treatment and if sufficient is mixed with the bark, enough Fe can be retained to last five years in a non-orchid mix (Handrek, 1989). Research by Prasad et al. (1989) on calcareous soil confirmed that the Fe nutrition of lentils can be satisfied by combining $FeSO_4$ with organic wastes. In our situation, pine bark is the organic waste, and dolomite treatment if used, provides the calcareous condition.

In assuming that commercial potting mix producers would use the least possible amount of $FeSO_4$, I decided to treat my bought mix with 600g per cubic metre (or 45g to a 75L garbage canful of pine bark).

(b) **Zeolite**: This mineral of volcanic origin was recently released in Victoria as Mount Gipps Zeolite Soil Conditioner and is available through David Mitchell Estate Ltd, Lilydale, Victoria. It comes as a fine pink powder.

Zeolite is claimed to cause an immediate increase in cation exchange capacity in horticultural potting mixes, to reduce nutrient loss through leaching, and to improve both water retention and availability.

Zeolites are made up of a network of "ion channels". These can trap nutrient ions as they dissolve from fertiliser, and then release them later. Considerable yield increases, of the order of 300% are possible with ornamentals (D Choy, Personal Communication).

I established a simple observational experiment in spring 1989 to see if zeolite would improve the performance of potting mixes for growing orchids. Nine Cym. Sue 'Maytime Magic' tissue-cultured propagations of 10-15cm leaf length were repotted on September 24 in mix treated with $FeSO_4$ + Zeolite. The latter was used at the recommended rate of 5% by volume. One such mixing is claimed to last the life of the potted mix.

The pots were weighed several times between September 1989 and January 1990 to assess the degree of moisture retention. The zeolite-treated pots retained between 12 and 22% more moisture than the untreated pots after watering, even allowing for some washing out of zeolite at the first watering. The interval between watering varied between 8 and 54 hours. The presence of zeolite in potting mixes may allow growers to extend the interval between waterings. Nine

months after the zeolite treatment I am still unable to say that the treatment has been beneficial to the growth of young Cymbidiums. I may have to wait much longer before being able to draw any reliable conclusions.

Those plants in the general collection that were not in need of repotting, were topdressed with zeolite in September 1989. A quick lifting test in February 1990 showed that when zeolite is mixed right through a potting mix, it gives better water retention than when it is topdressed only.

FERTILISER TREATMENTS

Slow Release Fertilisers and Salting

In mid September 1989, some of the 9 month Osmocote® applied in spring 1988 was still present in the top layer of mix in the pots. Moderate salting symptoms in the *Cymbidium* leaves were noted in winter, mainly in the polythene-covered flowering house which was being watered once a week. A faint white crystalline coating was present on the bark surface. A few salt scorch marks were present on the older leaves but the new shoots were healthy. The watering frequency was increased to twice a week in late winter and the scorch marks did not enlarge.

The statement below is given on the label of commercial packs of Osmocote® Controlled Release Fertilisers:

"Osmocote is effective in commonly used substrates and the release of nutrients is not influenced by pH, salt concentration, or water quantity". This could mean that as a pot dries up, the Osmocote® fertilisers can still release salts and so increase the likelihood of pot salinity if not heavily flushed with water.

The following statement is on the label of commercial packs of Osmocote® 18-4.8-8.3:

"Reduce the 4 to 8g rate per 15cm pot by 50% when Osmocote® 18-4.8-8.3 is combined with a liquid feed program at concentrations in excess of 150ppm each of N and K applied 2 to 3 times per week . . ., and . . ., reduce the above rate by 50% when Osmocote® 18-4.8-8.3 is used as the sole source of nutrients on sensitive crops such as azaleas, orchids, etc.".

An analogous statement on loose labels inside Osmocote® hobby tubs, advises half the normal rate. These loose labels can easily be mislaid, and then one can forget the statement, and apply the normal rate as I have learnt to my cost.

If Osmocote® fertiliser is used for growing orchids, it is clear that particular care must be taken in feriliser rates used and in water management.

Nitrophoska® Slow Release Fertiliser (NSRF) with trace elements (a BASF product), is available on the retail market in 25kg commercial packs and also in hobby tubs marketed by the Attunga Horticultural Co and Brunnings Garden Products. Its analysis is given below:

5% Nitrogen(N) as ammonium, 4% N as nitrate, 1% N as urea, 5% N as IBDU(isobutylidenediurea),
Total N = 15%
1.3% water soluble Phosphorus(P), 2.6% citrate soluble P, Total P = 3.9%
12.4% Potassium(K) as sulphate
% Sulphur(S) as sulphate
3.4% Calcium(Ca) as dicalcium phosphate
1% Magnesium(Mg) as sulphate, 0.2% Mg as oxide, Total Mg = 1.2%
0.1% Iron(Fe) as oxide
0.1% Manganese(Mn) as oxide
0.03% Boron(B) as calcium borate
0.02% Zinc(Zn) as oxide
0.0003% Molybdenum(Mo) and 0.0002% Copper(Cu) which are shown on the commercial pack label but are also present in the hobby products.

The low Cu content can be supplemented by the use of a protectant fungicide containing it (Refer Pest and

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Disease Control topic in Part 2).

Pine bark potting mixes can have a content of Mo less than 2ppm(or 0.0002%) (D Parry-Burton, Personal Communication). However this Mo is distributed right through the potting material and on degradation the pine bark releases its Mo. This is a good reason for potting on rather than discarding all the old bark at each repot. Nor should old bark be wasted when dividing. No less a grower than Bob Nicolle (1987) saves it. After sieving out the finer decayed fractions I have successfully re-used old bark, provided it had grown healthy plants.

The re-use of bark can also serve as a method for inoculating fresh potting mix with orchid mycorrhizae (see Role of Mycorrhizae topic).

The BASF Company advised me that many commercial orchid growers successfully use NSRF. The following information from BASF on NSRF is of particular interest to orchid growers (My comments are within parentheses):

1. **N Release** is controlled by bacterial activity and depends on soil/media temperature, moisture, and pH (crucial factors which influence plant growth).

2. The **Rate of Mineralisation** (nutrient availability) increases with rising soil/media temperature up to 35°C. Above 35°C, the mineralisation rate decreases.

   (This suits the growth cycle of Cymbidiums and reduces the risk of salting. The media temperature within pots can reach 64°C (Lamont and Worrall, 1985; Handrek and Black, citing Fetz, 1986). It should be noted however that recent research has shown that NSRF can release P quickly at temperatures between 10 and 50°C when it is mixed throughout the mix (Handrek, 1990). The longevity of P in topdressed NSRF was not studied; we may assume that P in topdressings may be released over a long period but we cannot be sure. Inorganic P can become fixed in soils as iron or aluminium phospates and become relatively unavailable (Harley and Smith, 1983b, citing Tinker (1975); Leeper, 1986). When the Fe in $FeSO_4$ is held on pine bark as iron oxide, this reserve of Fe is beneficial as it can fix the P that would otherwise be leached. Then mycorrhizae may have an important role to play in making this P available to orchids. Zeolite would also take part in limiting the leaching of P).

3. **Increasing Moisture** increases the rate of mineralisation until 80% water capacity is reached. Mineralisation is retarded at water contents higher than 80%. (This characteristic may reduce nutrient loss through leaching.)

4. **Acid Soils** accelerate mineralisation of NSRF. Alkaline soils slow it down. However, moisture and temperature factors outweigh the effect of acidity. (These characreristics make NSRF a good fertiliser for orchids. However, higher Fe, Mg and Mo contents would be desirable.)

By April 1990 it was evident that the salting problem had been controlled. Salt scorch was practically non-existent and the majority of *Cymbidium* leaves that grew during the spring to autumn period were very healthy and practically without leaf tip burn. The leaf tip problems present were mainly associated with *Glomerella* disease, not fertiliser treatment.

Role of Mycorrhizae

The fungi of the *Rhizoctonia* genus can infect orchid roots in a symbiotic relationship (Harley and Smith, 1983a; Garrett, 1981). Mycorrhizae are able to enhance the P nutrition of plants (Harley and Smith (1983b), citing Pairunan et al. (1980); Gianinazzi-Pearson and Gianinazzi, 1983; Tinker, 1984.) Roots infected with mycorrhizae may thus be able to make use of the P released from NSRF and fixed by iron oxides. This could well be the case in my situation because I have *Cymbidium* seedlings growing from seed sown with foster plants in pots of 20 and 25cm diameter, and it is established that such sowings require infection by mycorrhizae to germinate and prosper (Harley and Smith, 1983a). The sources cited also indicate that the uptake of nutrients other than P can also be enhanced.

The re-use of sieved potting mix in which healthy plants grew, can provide a crude inoculation method to introduce mycorrhizae to fresh potting mixes as suggested by Gianinazzi-Pearson (1989, citing Gianinazzi-Pearson (1986)). However, this inoculation does not appear necessary in established collections as infection has been shown to spread rapidly to non-inoculated plants in New Zealand where all but a new orchid house had mycorrhizae as found in a survey of commercial orchid growers (Bagyaraj, Powell and Brundell, 1982).

In study with Rhodes grass growing in pots, it was found that root colonisation by mycorrhizae, increased with pot size and root mass (Sreenivasa and Bagyaraj, 1989). The implication of this finding, if applicable to orchids, is that there may be real advantages in potting on orchids up to the largest sensible pot size, provided flower production did not suffer per unit area of shade or greenhouse. Increased mycorrhizal infection would then help to improve the nutritional and health status of the orchids.

Another possible benefit from the mycorrhizal infection of orchid roots is increased water uptake (Harley and Smith (1983b), citing various sources; Read and Boyd, 1986).

The application of non-systemic fungicides to foliage have no severely adverse effects on the mycorrhizae, as noted in a review by Smith (1978, citing Jalali and Domsch 1975).

Iron and Magnesium

Coker (1986) and Merriman (1987) have advised the use of Magnesium sulphate($MgSO_4$) as a topdressing in the warmer months. $FeSO_4$ is often recommended as a potting mix additive but it is hardly mentioned as a topdressing for Cymbidiums. I have not found any information on Fe chelate for direct application in powder form.

Many of my plants were Fe-deficient in September 1989. $FeSO_4$ and $MgSO_4$ were topdressed on October 31 to counter deficiencies; they were reapplied two and a half months later on my return (Table 1).

TABLE 1: FERTILISER RATES APPLIED, teaspoons

Pot Diameter cm	Nitrophoska Slow Release Fertiliser	$FeSO_4$/ $MgSO_4$ 1:1 Mix
10	¼	½
15	½	1
20	1	2
25	2	4
30	3-4	6-8

At the same time, I established a simple trial to compare $FeSO_4$ versus FeEDTA chelate applied in powder form. All plants in the flowering house were used. The proportion of $FeSO_4$ or Fe chelate to $MgSO_4$ was 1:1 as in Table 1. All the pots were topdressed with zeolite, NSRF and $MgSO_4$.

The chelate dose was much greater than that used in liquid feed formulations. Handrek (1989) believes that there is far too little Fe in manufactured liquid feeds to materially benefit plants.

On January 7, 1990, no Fe deficiency was seen in any of the plants. Only a few showed Mg deficiency symptoms, probably due to cultivar differences.

The potting mix in most of these pots had not been pre-treated with $FeSO_4$. The 1:1 mix was reapplied in mid January. Two weeks later, a salt efflorescence appeared at pot drain holes. This efflorescence does not seem to be damaging and is considerably reduced after two weeks' adequate watering.

In the shadehouse exposed to rain, the effects of the sulphate and chelate forms of Fe, and $MgSO_4$, are being observed on Fe and Mg deficiencies. The potting mix in this experiment was not pre-treated with $FeSO_4$ or zeolite, but the latter's effect is being examined as a topdressing. NSRF is the basal fertiliser used.

NSRF was applied in September and zeolite was topdressed only once on October 7. The 1:1 Fe and Mg sulphate mix, with comparison treatments of FeEDTA chelate, were reapplied on October 30, January 9 1990, and February 10.

By mid April 1990, no Fe deficiency remained in any treatment including the controls. This was the same on February 10, indicating efficiency of NSRF at these times. The only difference with Fe/Mg treatments, is that the controls are paler green. There were no apparent differences which had shown up by April between the $FeSO_4$ and FeEDTA chelate treatments.

NEW FERTILISER PROGRAM

1. **Dolomite**: Topdressed only at potting and repotting.

2. **Nitrophoska® Slow Release Fertiliser with trace elements (3-4 months)**: At potting or repotting, or in September/October, December/January, March/April. When used at 4-month intervals, chances increase for plants to look hungry. A 3-month interval between applications is better, but trial may show that an even shorter interval could give better results. These intervals do not apply to the winter period when the fertiliser is not to be used.

3. **Iron and Magnesium**: Pine bark potting mix pre-treated with $FeSO_4$ at the rate of 600 to 1200g per cubic metre. $FeSO_4$ and $MgSO_4$ supplements once monthly from October to March/April, if required; can be applied as solids or added to occasional liquid feed.

4. **Copper and Calcium**: Bordeaux Mixture fungicide spray as a Cu and Ca supplement. (Refer Pest and Disease Control topic in Part 2.)

5. **Diluted Urine**: 2L fresh urine in 73L water when a quick N deficiency correction is needed. Urine also supplies some P, K and S. Trace elements can be added to the solution if required. Following Alvin Bryant's "Cymbidium Flowering Logic" (1988), occasional application in summer could be useful as an NPK supplement and flower booster.

6. **Boron**: A few plants develop V-cracks across their leaf blades (susceptible cultivars). This could be due to B deficiency and a way to correct this is to add 3g Borax (sodium borate) = about half a standard heaped teaspoon, in 75L of liquid feed. This would give a boron boost to that supplied by NSRF.

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Part 2 next issue

*Chinese forests threatened by WWF

The WWF (World Wide Fund for Nature) intends to prohibit the export of *Paphiopedilum* orchids from China. The Fund is probably unaware that this will lead indirectly to the destruction of the Chinese forests and by thermoeffect the creation of a new desert. This could have a disastrous effect on weather all over the world.

We cannot ignore the 8 million people of the Chinese minority tribes — people whose livelihood depends on the limestone mountains where the *Paphiopedilum* grows. These people are the poorest in China. The average income for a family of four is just 8 RMB (approximately A $2.50) per month.

The government currently allows them to sell charcoal and home-grown herbal drugs, but recently the price of the drugs fell sharply, leading to a serious loss of income. Now the WWF is adding to the jungle peoples hardship by threatening to ban the export of *Paphiopedilum* orchids. What else can these people do to survive? They will destroy the forests by cutting down the trees to sell as charcoal. 95% of Chinese *Paphiopedilum* species grow in the limestone mountains. The orchids thrive in these areas, which are unsuitable for the cultivation of rice or other crops.

Last year, the Hailand Island Government, influenced by the WWF, placed restrictions on the export of the *Paphiopedilum*, angering the jungle people who are now only allowed to cut down trees to sell as charcoal. Consequently the forests on the island have all but disappeared and parts of the south and south-west have become very dry, with areas of desert starting to appear.

In the triangle of Laos, Thailand and Burma, the jungle people grow opium in the limestone mountains for export to the USA. This attracts aid from the USA, but as the Chinese government has prohibited the cultivation of opium there is no American aid. Why doesn't the WWF restrict the export of *Cattleya* orchids from Brazil, *Phalaenopsis* orchids from Taiwan, or *Dendrobium* orchids from Thailand? Why restrict only the *Paphiopedilum* from China? Have they no sympathy for the 8 million tribal people who are affected by this decision?

The WWF says it is concerned that the *Paphiopedilum* will become extinct. I have been to the habitat of the *Paphiopedilum* some six times and have seen it growing on high cliffs, but it was too risky to climb up to pick the orchids. It will take perhaps twenty years for the *Paphiopedilum* to reach maturity in the limestone mountains. The mountains will never become extinct. ■

J. Hadin
12 June 1990

*Report from the Chinese "Yan Chen" evening newspaper.

Complimentary Christmas Seals

A pleasant discovery awaits New South Wales readers in this month's Australian Orchid Review. Complimentary Christmas Seals for use on cards and presents that feature superb orchid photographs from the collection of Alan J. Merriman. Thank you.

Credit must also go to the Orchid Growers' Society, who in 1990, form an important link in the Challenge Foundations' annual Christmas Seal Appeal.

The Challenge Foundation was formed in 1951 as The Subnormal Children's Welfare Association, as a response by concerned parents of children with an intellectual disability to ensure they had access to a formal education.

In the same way that cultivating orchids is a labour of love, so too are the efforts of those who work in the 62 Branches of The Challenge Foundation throughout N.S.W. developing the potential of more than 3000 people with an intellectual disability. One industry which several Challenge Branches take pride in cultivating is the art and profession of gardening. All Australian Orchid Review readers are welcome to visit our nurseries at Casino; Armidale; Byron Bay; Tweed Heads; Cooma and our newest at Bowral. We would welcome an exchange of hints and views.

The Challenge Foundation now provides a greater variety of services, for more clients than the N.S.W. Department of Health. Its tireless volunteers and valued donors have made it the largest organisation of its type in the southern hemisphere. But we still need support and your donation acknowledging our Christmas Seals Appeal will go a long way to helping us achieve our goal of turning 'Life's Challenges into Life's Accomplishments'.

To find out more about the structure and services we provide to the intellectually disabled throughout N.S.W. please write to:

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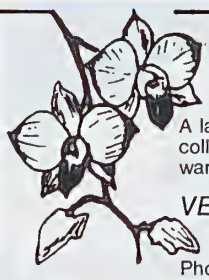
Our sincere thanks to the Management of the Australian Orchid Review for their support and enthusiasm. A very happy Christmas and a bountiful year ahead for all. ■



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The orchid's name came from the early Greek word ORCHIS, which literally translates into testicle — attributed to the shape of the swollen tubers of many orchids.

Early Greek civilizations used the orchid root as an aphrodisiac as well as a method for obtaining the desired sex of a child. It has also played a role in the various religious ceremonies throughout time.

Then and now, the orchid is an exceptional plant. Its numerous types, growth cycle, flower structure and shapes are just a few of its unusual characteristics.

To begin with, orchids have three growth patterns; epiphytic, which means that it grows on another plant but is not a parasite and derives substance from the air; terrestrial, which means it grows with roots in the soil; and saprophytic, which means those that live on decayed vegetation and are few in number.

In its fight for survival, the orchid has developed uncommon characteristics to help it perpetuate. In most flowers, the male and female reproductive organs — the stamen and pistil — are separate. But in the orchid, they are fused into a single organ called a column.

Another unusual quality is the orchid's structure. While most flowers consist of green sepals that enclose coloured petals, the orchid consists of three outer, highly coloured sepals that enclose three colourful petals.

One distinguishing characteristic of the orchid's petals is the lip, or labellum. The lip is different in size, shape and colour from the other two petals so that it can attract pollinators. Often it has a fancy shape with a fleshy or velvety look that gives it an almost unreal appearance.

Perhaps even more unusual is the orchid's growth cycle. In cultivation, they are grown for about a year in glass flasks that contain a nutritional mix of gelatin and sugar. From there, they are transplanted into a humidity box. Depending on the variety, it will take five to ten years for the orchid to actually produce a flower.

For this reason, beginners should start with orchids that are already blooming so they won't lose patience, suggests Dotty, president of the Fort Worth Orchid Club.

Sixteen years ago, Dotty and her husband, who are both professors at Tarrant County College, bought an orchid at a garage sale. Today, they have four greenhouses totaling 2,000 square feet with nearly 100,000 orchids.

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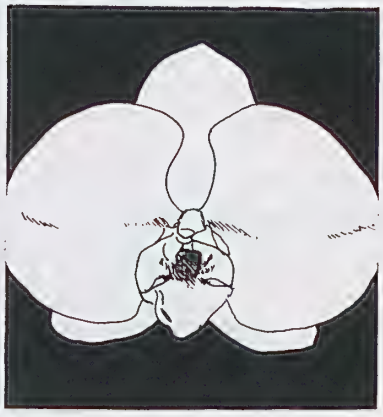

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M1127 *C. Portia 'Cannizaro' HCC x C. Chocolate Drop 'Kodama' AD*
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M1285 *C. Chocolate Drop 'Kodama' AD x Blc. Sylvia Fry 'Aurora'.*
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South America, Borneo and Sumatra, and many require meticulous attention. However, there are thousands of orchids that beginners can grow quite easily, such as *Brassovola, Cattleya, Phalaenopsis* and *Vanilla.*

Though orchids do well in greenhouse conditions where it's cool and damp, some varieties also do well indoors, Dotty says.

To begin with, orchids should be potted in the spring months using bark chips (Fir chips work well) or compost such as charcoal. They need to be repotted every other year. If they are epiphytic, perches can be unlimited, ranging from cork oak bark to tree fern fiber (or osmunda).

Potting them is the most popular mode – especially with an amateur. They can be grown in any kind of pot as long as it has good drainage. Since bark has little nutritional value, fertilizing is especially important. Commercial plant food or those prepared specifically for orchids are ideal.

Because there are thousands of varieties, growing conditions can vary widely. It is wise to follow the instructions that come with the orchid. Generally, orchids need lots of shaded light. If it too intense or hot, it will scorch the leaves. Depending on the variety, *Growing Your own Orchids* by Wilma Ritterhausen suggests these temperature conditions:

- Cool Varieties: a minimum winter night temperature of 50 degrees: maximum summer day temperature of 75 degrees.
- Intermediate varieties: minimum winter night temperature of 55 degrees: maximum summer day temperature of 75 degrees.
- Warm-house varieties: minimum winter night temperature of 65 degrees and ideally 70 degrees: maximum summer day temperature of 80 degrees.

Water orchids freely and keep potting mix material moist. Humidity is very important to orchids, and conditions vary widely. Some need only 40 per cent humidity while others need as high as 80 per cent. Its also good for the orchid to be misted daily – but again, that can vary depending on variety.

Ideally, orchids should be grown on a moveable table or cart. This way, you can move it to and from the window according to sunlight and temperature.

*This article was received from Sharon Lewis of the Melbourne Orchid Society, who loves reading about orchids from other countries. The story appeared in the Fort Worth Star newspaper, USA.

New Orchid Hybrids

MAY/JUNE 1990 REGISTRATIONS

Supplied by The Royal Horticultural Society as International Registration Authority for Orchid Hybrids

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NAME	PARENTAGE	REGISTERED BY
AERASCONETIA		
" Bouquet	*Ascf.* Peaches x *Aer. odorata*	J. Rumrill
ASCOCENDA		
" Edith Mangone	*Ascda.* Chaiyot x *Ascda.* Thonburi	J. Grezaffi
BARDENDRUM		
" Curio	*Epi. ciliare* x *Bark. lindleyana*	J. Rumrill
BARKERIA		
" Claire Hunt	*naevosa* x *melancocaulon*†	D. Hunt
BRASSOLAELIOCATTLEYA		
" Carlton Fisk	*Blc.* Hausermann's Jade x *Blc.* Glowing Splendor	Hausermann's
" Hawaiian Heart	*Blc.* Pamela Hetherington x *Bc.* Donna Kimura	Kodama's
" Hawaiian Sweetheart	*Blc.* Orange Nuggett x *Blc.* Malworth	Kodama's
" Lucille Stelnicki	*Blc.* Mem. Robert Hack x *Blc.* Fritz Nickolaus	Hausermann's
" Tiny Bod	*C.* Dayana x *Blc.* Waikiki Gold	H.A. Harrington (O/U)
BURRAGEARA		
" Durham Wild	*Mtdm.* Wildwood x *Oda.* Durham Petite	McBeans
CATASETUM		
" Nellie Paget	Susan Fuchs x *barbatum*	F. Paget
**CISCHOSTALIX (Cstx.)*		
" Rumrill Nubbin	*Cisch. dasyandra*† x *Sgmx. picta*	J. Rumrill
CLEISONOPSIS		
" Pinky	*Clctn. trichromum* x *Phal, lindenii*	J. Rumrill
**CLEISOTHERIA (Citha.)*		
" Rumrill Firefly	*Cleis. simondii*† x *Pthia. insectifera*	J. Rumrill
CYMBIDIUM		
" Highland Angel	Pacific Atoll x Angelica	McBeans
" Highlander's Cariga	Cariga x Christmas Angel	McBeans
" Highland Gold	Runnymede x Hamsey	McBeans
" Kintyre Gold	Putana x Goldrun	McBeans
" Laguna Seca	Mary Pinchess x Tapestry	Monterey Orch. (M. Pendleton)
" Pfeiffer Falls	Jean Brummitt x Tethys	Monterey Orch. (M. Pendleton)
" Point Lobos	Rincon x Jolity	Monterey Orch. (Geyserland's)
DENDROBIUM		
" Alpha Centauri	*falcorostrum* x *ruppianum*	D. B. Lynch
" Angels Edge	Fuchs Blue Angel x Sue Ching	S. Heyden (K. Kamiya)
" Brown Gloss	Brown Pixie x *ostrinoglossum*	E. Ware
" Golden Glow	Mem. Les Pennington x Brown Pixie	E. Ware
" Jaydee Jim	*gouldii* x *canaliculatum*	A. & D. Davis (Pritchard)
" Lavender Blue	Halawa Beauty x Blue Pacific	E. Ware
" Makaha Gold	May Neal x Pale Hawaii	W. K. Nakamoto (Miyamoto's)
" Mandalisa	Amanda Catherine x Mollisa	E. Ware
" Memoria Jo-Ann Kelly	Queen Cobra x Mem. Kip McKillop	G. Valmadre
" Misty Dawn	Julie Dawn x *antennatum*	E. Ware
" Pacific Gloss	Blue Pacific x *ostrinoglossum*	E. Ware
" Queensland Gold	Rachelle Simpson x Puanani Sunshine	S. Heyden
" Redland Bay	Eleanor Kathleen x *ostrinoglossum*	E. Ware

NAME	PARENTAGE	REGISTERED BY
DISA		
" Daphne Vogelpoel	Tricard x Diores	L. Vogelpoel
DORITAENOPSIS		
" Ken's Pink Delight	*Phal.* Elise x *Dtps.* Orchid Day	Kensington's
" Ken's Red Delight	*Dtps.* Amy Campbell x *Phal.* Mae Hall	Kensington's
" Ken's Spotted Delight	*Dtps.* Orchid Day x *Phal.* Barbara Moler	Kensington's
" Las Cuevas	*Phal.* Sarah Frances Pridgen x *Dtps.* Jason Beard	Brian Lee
" Luminescent	*Dtps.* Rosina Pitta x *Phal.* William Sanders	Orch. Zone (H. Hager)
" Mount Beauty	*Phal.* Mount Kaala x *Dtps.* Hamakita Beauty	Kensington's (ABC Orch. Corp.)
" Mount Odoriko	*Phal.* Mount Kaala x *Dtps.* Odoriko	Kensington's (ABC Orch. Corp.)
" Pepperneys Choice	*Phal.* Mount Kaala x *Dtps.* City Girl	Kensington's (ABC Orch. Corp.)
" Sussex Lady	*Dtps.* Marta De Rivilla x *Phal.* Lady Ruby	McBeans
KEFERANTHES		
" Jim's Gem	*Cnths, aromatica* x *Kefst. tolimensis*†	J. Rumrill
LAELIOCATTLEYA		
" Florence Bennett	*Lc.* Stephen Oliver Fouraker x *C. aurantiaca*	J. W. Bennett (V. Tullis)
" Kumiko Gotoh	*Lc.* Irene Finney x *C.* Gloriette	S. Tani
" Leonard Walker	*Lc.* Carla Off x *Lc.* Hausermann's Gala	Hausermann's
" Olgarette	*Lc.* Olga x *C.* Gloriette	S. Tani
**LEOCIDPASIA (Lcdpa.)*		
" Rumrill Snippet	*Lcdm.* Precious x *Asp. epidendroides*	J. Rumrill
**LOCKOGOCHILUS (Lkgch.)*		
" Rumrill Zigzag	*Lkchs.* Rumrill Gem x *Gom. crispa*	J. Rumrill
LYCASTE		
" Jim Riopelle	Koolena x Gyra	Mr/Mrs J. Riopelle
MILTONIA		
" Ginny Maffitt	Capitola x Tod Dirks	Mr/Mrs J. Riopelle
" Grant Kelley	Edwidge Sabourin x Robert Rankin	Mr/Mrs J. Riopelle
ODONTIODA		
" Durham Picot	*Odm. pescatorei* x *Oda.* Flocalo	McBeans
" Durham Stirling	*Oda.* Stirlana x *Oda.* Mardley	McBeans
ONCIDIUM		
" Baby Davelyn	Irene Gleason x Barbie	W. K. Nakamoto
" Christmas Star	Honolulu x *wentworthianum*	D. Bonham (Beall's)
" Janice Jost	Menehune x *splendidum*	J. Rumrill
" Judi's Pride	*limminghei* x *macropetalum*, Lindl. non Klotzsch	C. & J. Manning
PAPHIOPEDILUM		
" Betelgeuse	Miracle x *callosum*	Orch. Zone (T. Root)
" California Raisin	Clarissa x Cotice	Orch. Zone (T. Root)
" Carol Amundson	Neil McKerral x Paeony	N. Amundson (Stewart Orch.)
" Castle Festival	Hellas x Adwin	S. Murakami
" Glass Slipper	Algonquin x Cinderella	Orch. Zone (T. Root)
" Glenvale	Mahaska x Pacific Glen	J. Hanes
" Hamana Elfin	*purpuratum* x Vintner's Treasure	Saeki's
" Hamana Mauden	Warden x Maudiae	Saeki's
" Michelle Barringham	Delrosi x *philippinense*	G. H. Barringham
" Mithrandir	Skip Bartlett x Saint Quens Bay	Orch. Zone (T. Root)
" Mountain Vale	Robin x Vale	J. Hanes
" Queen of Hearts	Jim Iverson x Valwin	Orch. Zone (T. Root)
" Ring Leader	Vanda M. Pearman x *chamberlainianurn*	Orch. Zone (T. Root)
" Rochester	*hennisianum* x *glaucophyllum*	D. & J. Erdmann
" Sky Country	High Country x New Allendale	J. Hanes
" Snow Storm	Peter Black x Freckles	Orch. Zone (T. Root)
" White Cloud	Susan Tucker x Gigi	Orch. Zone (T. Root)
" White Flight	Todd Clark x Freckles	Orch. Zone (T. Root)

NAME	PARENTAGE	REGISTERED BY
PHALAENOPSIS		
" Arelene's Dance	Cha-cha x Arlene Andrews	Orch. Zone (J. Ewing's)
" Beginners Winner	Lolita x Simply Smashing	Hausermann's
" Brighton Belle	Tarantella x Silk Worm	McBeans
" Castile	Sandstorm x Luxembourg Castle	Zuma Canyon's
" Cathay	Zuma Talisman x Zuma Urchin	Zuma Canyon's
" Cheam Gold	Hausermann's Goldcup x Chamonix	T. Lawson
" Copper King	William Sanders x Meller Gold	Orch. Zone (H. Hager)
" Covington Sunset	Samba x Lung Ching's Pride	Breckinridge's
" Desert Dreams	Golden Buddha x Abendrot	Stewart Orch.
" Desert Rose	Golden Buddha x Channel Rose	Stewart Orch.
" Dora	Ruth Bunon x Rhoda Fredricks	W. Fogarty
" Glorious Dawn	Alpine Dawn x Glory Stripes	Stewart Orch.
" Hausermann's Passion	Hausermann's Bella-Ano x DuPage	Hausermann's
" Hausermann's Tempter	Hausermann's Aida x Hausermann's Special	Hausermann's
" Hawaiian Creation	Herbert Hager x Zauberrose	Kodama's
" Hawaiian Unique	Tyler's Tiger x *equestris*	Kodama's
" Herb's Cloud	Herbert Hager x Rosa Niebla	Stewart Orch.
" Island Song	Island Dancer x Mouchette	Stewart Orch.
" Ivory Style	Whirlpool x Mouchette	Stewart Orch.
" Kaala Moon	Paper Moon x Mount Kaala	Kensington's (ABC Orch. Corp.)
" Ken's Speckled Delight	Barbara Moler x Natalie Bodendorf	Kensington's
" Ken's Striped Delight	Elisa x Natalie Bodendorf	Kensington's
" Lehua Charm	Cirebon x *equestris*	Zuma Canyon's (R. Takase)
" Little Tyke	Little Hal x Cassandra	Orch. Zone (H. Hager)
" Louisiana Carmel	Barbara Moler x Frisco Ruby	Breckinridge's
" Lovely Lee	*amboinensis* x Goldiana	Smernoff (O/U)
" Lucille Lundberg	Jamie Phillips x Hausermann's Cheri	Hausermann's
" Maracas Bay	Celie x Evangeline	Brian Lee
" Margaret Wilson	Young Love x Andrew Hausermann	Hausermann's
" Melinda Weber	Hausermann's Chicago x Yellow Marquis	Hausermann's
" Memoria Albert Schweitzer	California Glow x Spring Silk	Stewart Orch.
" Memoria Samuel Gatzke	Valley Belle x Kauai Palm	W. Roberts (Lauralin's)
" One Mission	Spring Silk x Abendrot	Stewart Orch.
" Past Time	Whirlpool x Herbert Hager	Stewart Orch.
" Patricia Benjamin	Enchantress x Sugar Spun	Hausermann's
" Pink Eagle	New Eagle x Mount Kaala	Kensington's (ABC Orch. Corp.)
" Pink Pinnacle	Zauberrot x Mi Cha	G. Fukumura
" Rose Dream	Rose Heart x Mouchette	Stewart Orch.
" Song Bird	Whirlpool x Step Right	Stewart Orch.
" Spring Rose	Channel Rose x Spring Silk	Stewart Orch.
" Spring Splendor	Spring Silk x Tungku Atzan	Stewart Orch.
" Stone Condor	Fortune Girl x Paifang's Lucky Seven	Chen Gee-En
" Stone Girl	Fortune Girl x Zuma Dancer	Chen Gee-En
" Stone Song	Chiayl Spot x Liu Tuen-Shen	Chen Gee-En
" Stormy Skies	Whirlpool x Giant Frost	Stewart Orch.
" Summit Blusher	Anne Rovira x David Loeb	Breckinridge's
" Summit Frosty Jewel	Cassandra x David Loeb	Breckinridge's
" Sussex Melody	Champagne Lady x Redfan	McBeans
" Sussex Pearl	Lady Alice x Barclays Celebration	McBeans
" Sussex Scenario	Sussex Melody x Eva Lou	McBeans
" Sussex Sparkle	Champagne Lady x Eva Lou	McBeans
" Temple Bells	Templed Hills x *venosa*	Orch. Zone (H. Hager)
" Texas Mist	Tabasco Tex x Misty Green	J. E. Wilson
" Zamarino	Marie's Destiny x Whirlpool	Stewart Orch.
POTINARA		
" Erik Paul Jost	*Bnts.* Edna x *Lc.* Wotan	J. Rumrill
" Heather Kwiatt	*Pot.* Mount Yellowhorne x *Pot.* Moonlight	G. Hausermann
" Jim Moretz	*Pot.* Heather Kwiatt x *Blc.* Hausermann's Dazzle	G. Hausermann
RENANTHOPSIS		
" Carolina Sunset	*Ren.* Brookie Chandler x *Phal.* Barbara Freed Saltzman	Breckinridge's

NAME	PARENTAGE	REGISTERED BY
SOPHROCATTLEYA		
" Princess Tiara	*C.* Moscombe x *Soph. coccinea*	S. Tani
VANDA		
" Beatrice Makio	Ruby Prince x Reverend Masao Yamada	R. Makio

* New intergeneric names, with recommended abbreviations, representing the following intergeneric combinations (the name of the botanical authority follows the name of each component genus):—
Cischostalix — Cischweinfia, Dressler & Williams (NB: The standard abbreviation for *Cischweinfia,* which is new to registration, is *Cisch.*) x *Sigmatostalix,* Reichenbach f.
Clisotheria=Cleisostoma, Blume (NB: The standard abbreviation for *Cleisostoma,* which is new to registration, is *Cleis.)* x *Pelatantheria,* Ridley.
Leocidpasia — Aspasia, Lindley x *Leochilus,* Knowles & Westcott x *Oncidium,* Swartz.
Lockogachilus — Gomesa, Robert Brown x *Leochilus,* Knowles & Westcott x *Lockhartia,* W. D. Hooker.

† This symbol marks the first occurrence as a parent in hybrid registration of each of the following species:— *Barkeria melanocaulon; Cischweinfia dasyandra; Cleisostoma simondii, Kefersteinia tolimensis.*

CORRIGENDA — Orchid Review list of:—
August 1987, *Pleione;* Mayou should read Mayon.
March 1990, *Phalaenopsis;* Paul Tartar should read Paul Tatar.

IMPORTANT NOTICE: CHANGE OF ADDRESS

In order to reduce mailing delays please note that with immediate effect completed application forms should be sent to the following address:—

ORCHID REGISTRAR
P.O. BOX 1072
FROME
SOMERSET BA11 5NY
ENGLAND

Other correspondence with the Registrar should also be sent to this address.

Requests for *SANDER'S LIST OF ORCHID HYBRIDS* and the various *ADDENDA* and also the *HANDBOOK ON ORCHID NOMENCLATURE AND REGISTRATION* should be addressed as follows:—
USA residents: American Orchid Society Inc., 6000 South Olive Avenue, West Palm Beach, Florida 33405, USA.
non-USA residents: (a) *Sander's List of Orchid Hybrids* — Main Work 1854-1945 and *Sander's One-Table List of Orchid Hybrids* 1946-1960 (vols. 1 and 2) only from American Orchid Society Inc. as above.
(b) *Addenda* 1961-1970, 1971-1975, 1976-1980, 1981-1985 and the *Handbook* from RHS Enterprises Ltd., The Royal Horticultural Society Garden, Wisley, Woking, Surrey GU23 60B, England.
Personal callers may obtain copies from either of the above addresses or from the Royal Horticultural Society, Vincent Square London.
Please note that all matters concerning orchids at the Royal Horticultural Society (e.g. Orchid Committee and awards, Orchid Registration Advisory Committee) should be addressed to the RHS at Wisley at the above address.

Reprinted from *The Orchid Review,* August, 1990.

Growing Orchids in Australia

Terry Cook
Publisher Golden Press
104pp, Hard cover: RRP $19.95

In its 104 pages, Sydney orchid grower Terry Cook with 'Growing Orchids in Australia' provides a low cost book ideal for the person just bitten by the orchid bug.

The introduction covers the morphology of orchids and their flowers, pollination, cultivation, fertilizers, housing and culture. However most of the emphasis is placed on the plants themselves. Twenty four easily grown genera are discussed, with specific examples given in most cases.

The theme of the book is culture, with plenty of informative tips. Alternative potting media are discussed, inviting the reader to experiment.

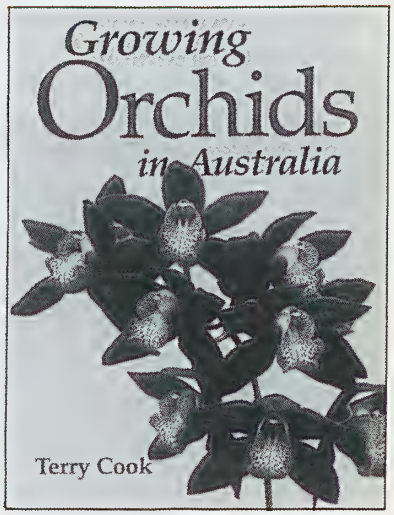
Most of the photographs are of a high quality. I was particularly impressed with the *in situ* shot of *Oncidium globuliferum.*

The only fault I would have is the duplication of photos of some species eg *Miltonia spectabilis* and a couple of the nomenclatural errors such as incorrect spelling and incorrect captions to photos. For example one of the plates of *Oncidium flexuosum* is *O. varicosum* and the *Laelia sp* is in fact a hybrid.

This book would make an excellent addition to the bookshelves of the novice orchid grower or the beginner with a few plants tucked away in their backyards.

In an age of expensive books, the reasonable price is certainly a breath of fresh air.

David Banks



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Looking Back

The Australian Orchid Review is fast approaching its 56th year of publication and there must be a large number of readers who have been subscribers since the magazines inception, way back in 1936. The publishers would like to thank you for your continuing support for, without you, there wouldn't be an Australian Orchid Review.

From February, 1991 the publishers are introducing a new feature entitled "Looking Back", and we are inviting readers to send in articles which will give the orchid lovers of today an insight into what the orchid industry was like all those years ago.

All articles published will receive a complimentary 12 months subscription to the AOR.

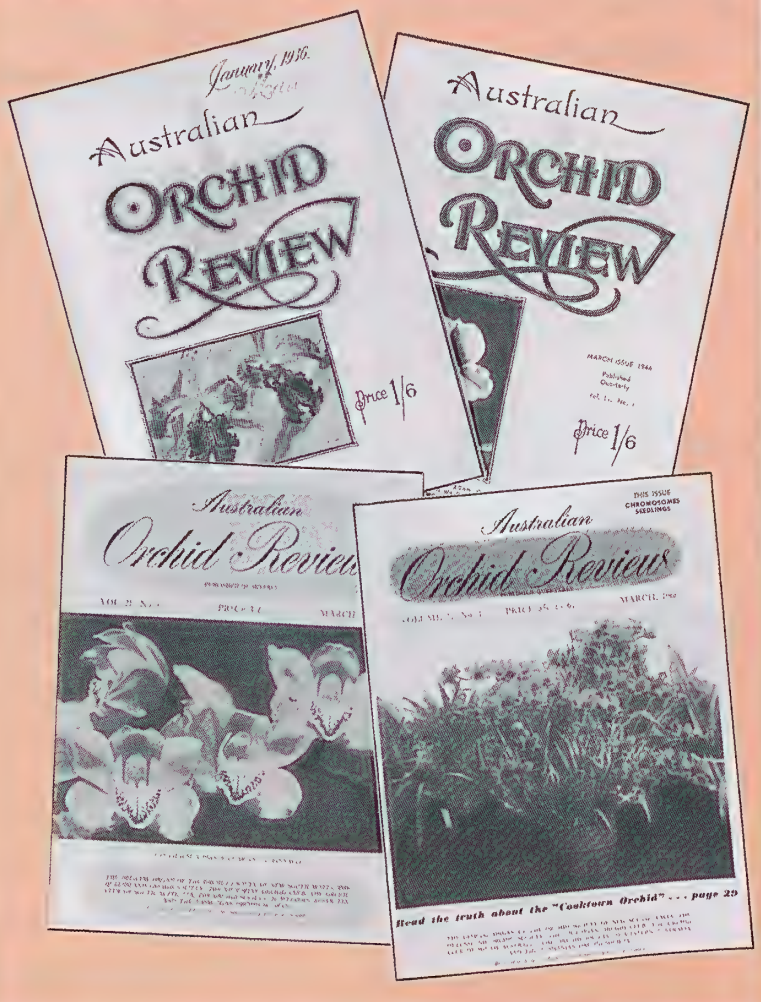
Address articles to the Editor, David Wallace, Australian Orchid Review, 90 Great Western Highway, Blaxland, NSW 2774.

Please ensure that any photographs are marked clearly with the authors name and address.

We have also had enquiries from readers wanting complete sets (as from issue No. 1) and complete volumes of the Australian Orchid Review.

If you have any of the above gathering dust in some dark corner, and are in good order and condition, drop us a line giving details of your collection and the asking price.

If your set of "AOR" is incomplete, and you would like to complete it, advise us of the volume No. and date of issue of the missing copies and we will endeavour to track them down. ■



New additions to the Nylex GARDENA range of Tools.

Nylex GARDENA have added five new cutting tools to their range in 1990.

New additions include Swivel Edge Clippers, Scissors, Hedge trimmers and Anvil and Bypass loppers.

180° Swivel Edge Clippers.

Particularly useful for hard to get to areas. Blades can be swiveled up to 90° on either side. It has nine different cutting positions. It is suitable for both right or left handed people.
The Xylan coated blades ensure clean and rust free use, say the makers.
Recommended retail around $45.00.

Snip Snap Scissors.

Heavy duty multi purpose scissors suitable for all applications. Quality stainless steel blades, dishwasher safe and suitable for both right or left handed people.

Recommended retail around $15.00. Great gift idea.

Wavy Hedge Trimmer.

This easy to use hedge trimmer provides simple and exact cutting due to the wavy upper blade which prevents branches slipping through, say the makers.

The precision blades are made from hardened steel.

It also features adjustable tension and a twig cutting facility.

Recommended Retail around $40.00.

Anvil and Bypass Loppers.

The Anvil Lopper will cut fruit trees, shrubs and bushes.

Due to the design of the head there are two lever actions occuring which results in a reduced amount of energy needed in the cutting action. The engineering might be complex but the end result is simple effortless use, say the makers.

For prolonged use the anvil can be replaced.

Recommended Retail around $50.00.

The Bypass Lopper is ideal for cutting ornamental trees, and bushes. It will cut through 4.5 centimetre branches with ease, due to the Xylan coated cutting blades to ensure friction free cutting and has adjustable blade tensioning. It also has rust proofing.

Recommended retail is around $50.00.

The above products are now available from hardware stores and Garden supply centres.

Indoor Pots

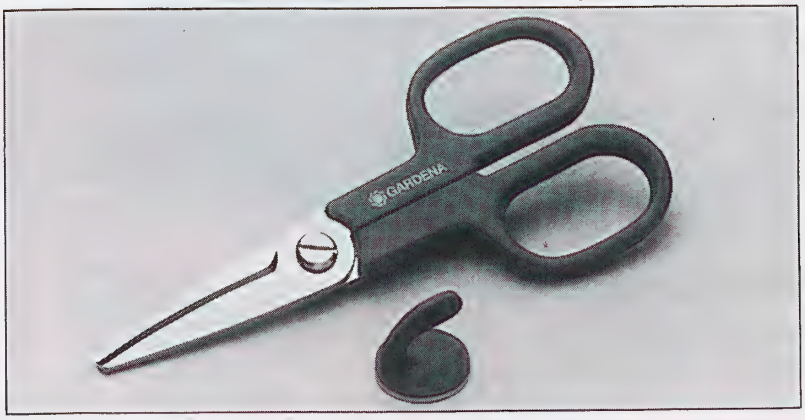
The Planterra Division of Gale Australia have released a new range of indoor planter pots — called Florapots.

Planterra decided when they designed the new range that not all of us like to repot plants when it came to bringing nature indoors. The company styled and shaped Florapots as a full depth planter to take most of the ugly yet functional black grower pots most of us buy our plants in. You can repot if you so desire or, simply leave your plant in its grower pot and slip the plant and pot inside your Florapot.

The new Florapot range comes in six sizes ranging from a 10cm small pot up to 40cm for larger plants. The manufacturer says that Florapots feature a high gloss antistatically treated material which won't attract dust. They're made from a specially formulated material called Enduralon which gives them their exceptional strength. Colours are white, black, green, blue

and rose, and all feature snap-on saucers as part of the pot.

The recommended retail price is — from $1.99 to $16.99. Florapots are available from most major department stores, hardware stores and nurseries.



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Steam train trip to Orchid Valley

In May of this year the extension and upgrading at the old sugar tram line, from Queensland's Mulgrave Central Sugar Mill to Orchid Valley, was officially re-opened.

One of the main atractions is an old steam locomotive, which as been fully restored to its former glory. Built in Scotland in 1934, the train operates a twice daily tour from the Mulgrave Central Mill, where visitors can get a first hand view of sugar production, and takes in the Mulgrave River and Valley, The Bellenden Ker National Park and finishes at Orchid Valley, where passengers can alight and enjoy the magnificent orchid display, set amongst tropical foliage and waterfalls.

The owners of Orchid Valley, David and Susan Collier, suggest orchid lovers take the morning tour and stay for lunch at the Garden Coffee Shop, then catch the afternoon train back to the mill.

For more details contact Orchid Valley Nursery, Phone: (070) 56 1727.

How do you kill a Black Bug?

An AOR subscriber passed this letter onto us, and we have reproduced it here in its original form.

It's great to see the younger generation taking such an interest in Orchids.

P.O Box 132
Babinda 4861

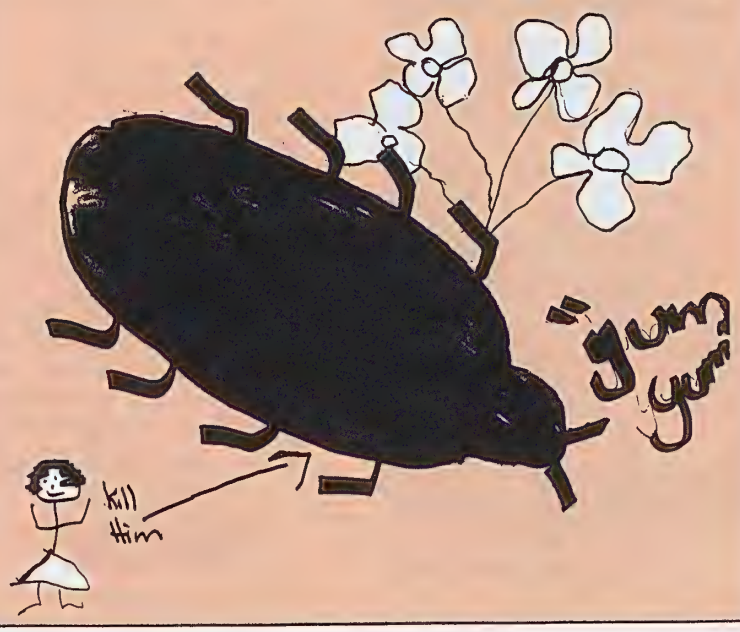
Dear Sir / Madem,

Thankyou for repling my letter that I wrote a few weeks ago.At home we grow vander Orchids and are very pretty flowers but there is a nasty pest that allways eats the flower or eats the stem we got guard yard to see if it would work and attract those nasty pests but it does not work .I will decribe it for you it is a black bug and is not very small we can't find anything to kill it but could you please write back and tell us what can kill this black bug because it is a real pest and destroys nealy anything you try to grow.the bottom of the page I will draw a picture of it and hoping you can understand it and no what it looks like.**********

******** Yours
Sincerly

ROSEMARY SCIACCA********

**********ORCHID VALLEY **********



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Rojo Negro 'Vixen'	chestnut
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Sarah Jean 'Wondabah'	yellow
Senheart 'Sakurai'	red blush
Starbright 'Capella'	pink
Waltz 'Idol'	green
Winter Fire 'Abbeville'	red

Standard

Cherilyn 'Swansea'	white
Clarisse Carlton 'Bicolor'	Polychrome
Highland Mist 'Dillabirra'	white
Pymble Hill 'Oakleigh'	white
San Francisco 'The Beat'	Polychrome
Sensation 'Kimberley'	red
Sleeping Dream 'Tetragold'	yellow
Winter Wonder 'Susan Nicholson'	white

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P.(Lippstadt x Arai) x Lippestern 'Long Life' – pink
P.California Glow x (P.Romance 'Sweet Lisa') – pink
P.Winter Kaala x P.Shiranami – white
P.Joseph Hampton 'Diane' x P.Ibis 'Irene' – white
P.Texas Thunder x P.Snow Mountain – white
P.Dawn Hunter x Gladys Read 'Snow Queen' – white
P.Hakalau Clouds x Hatsuyuki 'Blumen Insel' – white
P.Yukimai x Dtps. Double Trouble – white
P.(Doris Wells x Malibu Fable) x Lippestern – pink

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Report on O.S.N.S.W. Ltd Winter Show 1990

by David Banks

The Orchid Society of New South Wales Ltd staged its most successful Winter Show at Roselands this year. A record sixteen Societies participated in the display sections with first class exhibits. The quality and variety of the orchids benched was a credit to all the growers concerned and the Society workers involved with transforming the plants into memorable displays.

Sutherland Shire Orchid Society thoroughly deserved their Class 1 victory, a position Parramatta and District Orchid Society Inc. relinquished after a six year domination — slipping into second place. North Shore Orchid Society Inc. came in third, Bankstown Orchid Society was fourth and Cumberland Orchid Circle fifth in a closely contested final five.

Royale Orchids magnificent display of cymbidiums, paphiopedilums and cattleya alliance hybrids was judged "Best Commercial Exhibit". Growing Point Nursery achieved second place in this class.

Orchid S.P.E.C.I.E.S. (NSW) Inc again won Class 2 with a wide array of exotic species; followed by Five Dock RSL Orchid Society and Eastern Suburbs Orchid Society.

Grand Champion of the Show was Bill Hughes' outstanding *Oncidium* Golden Cloud 'Jacqui' AM/NSW. This also won Champion Oncidium Alliance and is one of the best varicosum type oncidiums seen.

Keith Lansdown's *Paphiopedilum* Danella 'Chilton' collected Reserve Champion of the Show and Champion Paphiopedilum. Not bad for an orchid roughly 30 years old! This delightful slipper in the autumn tones has certainly stood the test of time. Both of these champions were in the Sutherland display.

Bankstown's Fred Weir won Champion Standard *Cymbidium* with the pink *Cym.* Lisa Rose 'Susie' and John Mata surprised all by taking out the Champion Intermediate Cymbidium with *Cym.* Greenoaks Gem 'Kevin'. *Cym.* Sarah Jean 'Jennifer' owned by David Butler deserved its Champion Miniature *Cymbidium* award in the Cumberland display.

Champion Australian Native Orchid Species went to a dark coloured form of *Pterostylis ophioglossa* grown superbly by Bill Kennewell in the Sydney Orchid Society display.

The Champion Australian Native Orchid Hybrid and Ira Butler Trophy went to a fine clone of the popular *Dendrobium* Hilda Poxon. This plant was exhibited by Neville Roper of Sutherland Shire Orchid Society.

Other Champions were: Champion *Cattleya* was *Blc.* Mount Sylvan 'Clarice Jean' owned by David Bird of Berowra and District Orchid Society; Champion Vandaceous was *Phalaenopsis* Muashino 'Julie Ann' of Greg Bryant's in Sutherland display; Fred Alcorn took out Champion Exotic Species and Champion Any Other Orchid with *Lycaste skinneri* var. *alba* and *Lyc.* Wyong 'Charm' respectively.

Best seedling of the Show went to a plant of *Paphiopedilum* Melissa Day 'Lynette' owned by Graeme and David Banks. This spotted was one of John Marks' seedlings of the cross *P.* Novenka x *P.* Hades Gold, and shows a lot of potential with its clarity of colour, good texture and fine shape.

Top: *Paph.* Danella 'Chilton' AM/NSW. This plant received its high award in 1979 and even at that stage it was a consistant show winner. After many years it continues to be the plant to beat on the show bench. Above: *Oncidium* Golden Cloud 'Jacqui' AM/NSW. A superb example of the varicosum type oncidiums which are so popular with orchid growers generally. This clone has size, colour and shape superior to others of its type. — *Photos: G. Banks.*

Orchids in the Wagga Wagga Area

by John Cosier

Now that the joy and the work involved in staging the South West Regional Conference has passed us by in Wagga Wagga, it leaves me with a little time to reflect on the benefits of the Conference and associated show; especially in growing orchids in this area with its less than kind climate. Here we suffer from an excessively hot and dry summer climate with temperatures well below freezing in the winter.

I can reflect on the information gleaned from a number of very different lecturers. I can remember the vast variety and quality of orchids benched in the Show; especially those varieties never benched in Wagga before such as *Odontoglossum, Miltoniopsis,* and the magnificent display of soft cane *Dendrobium* of Banana Coast Orchids. I am delighted with the wonderful friends I have made with both professional growers and amateurs like myself. However, I would like to pass onto the readers some of the very helpful advice passed onto me by visitors to our city when they were inspecting my orchid collection.

I have two heated houses for my orchids along with a number of shade houses. The first heated house I erected was the traditional glass house. It was much too small, not only to house my growing collection but to allow easy temperature control. I heat it with a small electric heater but boosted with a solar heater which blows hot air onto a rock pile housed within a brick wall under my benches on the western side. I soon realised I could design an orchid house more suitable for our Wagga Wagga climate.

I built a larger tunnel house, with two framed constructions 10 cm apart. The outer frame holds fine wire mesh and I.C.I. Visqueen film. The inner frame holds the 27% white Marix Thermal Screen. It has a door at one end; at the other end are low air vents and a high self opening window. At the top, above the door, I have built a solar cooling chimney, taken from the Australian Orchid Review, Autumn 1988. I built mine 30 cm diameter and 2 metres high, painted black and surrounded with corrugated plastic. A circular valve at the bottom can open or close the air flow. I heat with a small (14 cm cube) Micro Furnace.

I knew that growing conditions improved if the house was full of plants, and this I thought I had done. Each of my visiting orchid friends told me I did not have enough plants in the house to help hold its humidity. "Fill it up to the brim" I was told.

Several of my visitors commented on how well certain plants were doing in my environment in Wagga Wagga. First, my specimen plant of *Brassavola digbyana* (syn. *Rhyncholaelia digbyana*). I have it growing in a slat basket with its roots squeezing into every crevice. I have never renewed its bark mix and it flowers profusely each Christmas (I think it knows there are no shows on over Christmas).

Another fine specimen that does particularly well for me is my specimen of *Arpophyllum spicatum.* I have seen a specimen plant of this orchid with 25 spikes, so I will not divide my plant.

My *Oncidium flexuosum,* growing on a large slab of tree fern, is becoming more difficult each year to fit into my station wagon. I back-cut it during the year hoping it would produce more spikes. Perhaps I will reap the benefit next year.

I have three slipper orchids of which I am very proud. First is my multi-flowering *Paphiopedilum* Pinocchio (*glaucophyllum* X *primulinum*). This cross was registered in 1977 by the French firm of Marcel Leocufle. Its flowers open in succession and therefore flowers for most of the year. I have had 18 flowers in the one year. I am also fond of my *Paph. hirsutissimum* (the hairy one). It has four well formed flowers as I write this article. The third slipper that produces very well for me is my *Phragmipedium caudatum.* This year it has produced four flowers with their petals growing down further than the base of the pot. (Did you know it is listed in the Guinness Book of Records as the biggest orchid flower in the world).

Another orchid I flowered for the first time this year after many years of growth is *Brassavola tuberculata.* Thanks to my visitors, I now have its correct name on it.

My Sydney visitors commented on the vigorous growth and flowering habits of my *Epidendrum falcatum* (Syn. *parkinsonianum*) and its close neighbour *Dichaea pendula.* Both

Tunnel house showing the double frame construction and the solar cooling chimney.

growing on tree fern they flower well for me each year.

Oncidiums mostly do well for me, but in particular the equitants. However I must comment on a fine big plant I have of *Oncidium microchillum* that has never flowered for me. I was told to give it plenty of sun. This I did. I was told to let it become rootbound. This it has. I wonder if it is too hot for it in Wagga Wagga as they grow naturally at high altitude.

Another orchid I have not managed to flower is my *Paph. stonei.* I know it should flower on second or third year growths. But my plant has not as yet produced new growths. I give it plenty of light but suspect that a minimum of 12°C in winter is not enough for it.

Two more plants that grow vigorously, but have not flowered for me are *Dendrobium jenkinsii* and *Maxillaria tenuifolia,* both growing on compressed cork slabs. Perhaps they are waiting until a bigger clump is formed, because they are both reproducing well.

I have many plants that do flower, such as hybrids of *Phalaenopsis* and *Miltoniopsis,* but they are not to be compared with the same plants growing in areas such as Sydney with higher humidity. Because I do not run an evaporative cooler, I do not even attempt to grow Odontoglossums.

Cymbidiums are only a minor part of my interest in orchid culture. However they grow very well in this area providing they receive a light cooling spray at night around January and February when the flower spikes are initiating.

No epiphytic orchids grow under natural conditions in our area. We are fortunate to have some natural areas where some good colonies of terrestrials grow. Visitors at our conference were shown one area, where, among the more common varieties they found a patch of *Pterostylis, plumosa* growing. Other terrestrials that grow within an hour's drive from Wagga Wagga are *Pterostylis nana, Pterostylis revoluta, Diuris maculata, Thelymitra pauciflora, Caladenia coerulea, Glossodia major, Calochilus robertsonii, Chiloglottis gunnii* and *Corybas hispidus.*

One of the great joys for many of the growers in this area during the conference was the visit by a number of Orchid Nurseries. There is a need for a nursery supplying a wide range of orchids in our area, but it would probably be a more viable business for a firm to visit Wagga Wagga at least once a year. This is much more exciting than buying out of a catalogue and paying cartage fees.

Top: *Paphiopedilum* 'Pinocchio'. A really successful multi-flowering cross between *Paphiopedilum glaucophyllum* and *Paphiopedilum primulinum* made by French firm of Marcel Lecaufle in 1977. Centre: *Paphiopedilum hirstutissimum.* Above: *Oncidium Missy* 'Richella' AM/AOS x Golden Sunset 'Fumi'. A very beautiful equitant *Oncidium.*

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Some Australasian Orchids

The Botanical Travellers that go from Cape York to China by way of Papua New Guinea.

(continued from August AOR)

by Andree Millar

It was on the Bensbach River that I first saw hundreds of several species of tropical orchids that are among Australia's most beautiful, especially *D. discolor,* but the biggest and most beautiful forms of *Dendrobium nindii, Dendrobium trilamellatum* (not so common but we found this one in quantity on a combined trip across the border into West Irian), *Dendrobium antennatum, Dendrobium mirbehanum,* (and in spite of the highly qualified taxonomists, no-one will ever convince me that the Australian *Dendrobium wilkianum* is the same species as our *Dendrobium mirbelianum*). There were other Dendrobiums there in that river, a few *Dendrobium canaliculatum,* we found on that expedition only one *Dendrobium johannis,* and higher up the river, plenty of our own *Dendrobium conanthum,* and literally thousands of *Dendrobium smilliae,* in many shades of pink with dark green labellum, and the really striking pure white with the green lip.

It was not easy to get to the Bensbach River, it had to be by trawler from Daru, in the Western Province, and then sail down the coast. We had work to do, so we had left Daru and then gone into other rivers, beginning with the Oriomo, which has much the same distribution of orchids, particularly Spatulatas, but not with the same prodigality and flambouyant displays. After leaving the Morehead, we decided to anchor and have a night's rest, asking the Captain to get an early start for the Bensbach, and to wake us when he did. However, we got the fright of our lives and thanked whatever it was that woke me. We had done a fair amount of crawling through swamps on the way down, and we were all physically tired and needed the rest. I woke about 11 am and looked at my watch and then out the porthole, stunned to see open sea, we should have been in the Bensbach by at least 5 a.m. In the early morning fog and the shimmering haze of the bright sun, the Captain had missed the channel through the mudflats that stretched out from the coast, and had missed the turn, and looking ahead, I could see that another twenty minutes would have us in Merauke (Indonesian West Irian). I am sure that we would have been welcome and found an orchid lover there, but international protocol did not allow unheralded visits and we made a very smart right angle turn and headed out to open sea, before we sailed back and found the channel into the Bensbach.

Top: Marj Purnell, born in Mackay, Queensland, here at the May River. Marj fell in love with the Spatulatas during her years in P.N.G. and returned to Australia in mid 1970 with one of every species we had. Her work with these in Queensland will be her lasting memorial. Above: *Dendrobium nindii* collected from a tree on the bank of the Bensbach River, in Southern Papua. – *Photos: Andree Millar.*

A few hours up the river, we anchored to get out the out-board motor and the canoe, because this was the wet season, and high water, and you can get into a lot of the riverine forest without getting your feet wet, which is just as well, as it is also crocodile time, but one learns to be very careful, very quickly, the boat's crew had an unending fund of stories about hungry crocodiles and stupid white men . . . and women. There were of course, occasion when you did step into the water to reach a particularly desirable specimen but I assure you that you got back into the canoe with the speed of light.

We found a lot of other orchids, which had also wandered over from Australia; *Diplocaulobium glabrum, Dendrobium rigidum, Oberonia complanata* (which we then called *Oberonia muelleriana) Vanda hindsii* in two colours, the usual reddish bronze and the pure yellow I had only seen once before from Kaiapit but I believe it is seen more often in Austra-

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lia. *Eria dischorensis* was common and I feel that we probably saw more that were equally at home in the Cape York Peninsula.

However, it was time to turn back though it was difficult to leave those thousands of Spatulatas festooning the trees all along the river, many of them obviously natural hybrids, probably based on the fantastic colours in the *D. discolor,* with huge sprays with flowers from 3cm to 9cm or more from the tip of the petals to the bottom of the mentum. I will still swear that I saw a double of *D. Gloucester Sands,* but the plant did not survive the trip back. This made me determined to look elsewhere for two other well-loved Australians that I was sure were Papua New Guineans as well, Australasians today. These were *Dendrobium johannis* and *Dendrobium canaliculatum.* Both had been brought to me as desicated specimens by a patrol officer stationed in the Western District, and I had found a couple of small plants myself in 1968 when we were working on the Fly River and had deviated up a small creek to Szaga Lake in search of wild rice.

So on the way back, we dropped anchor and went ashore at the Mai Kussa River, as far inland as the village of Buji. We knew that there were miles of *Melaleuca* swamp, and after following a track inland we came to the swamp, miles and miles of it, from a few inches deep to suddenly well over my knees. I remember asking myself why in my position of authority, I had not delegated someone else who lived there to go and look for them. I was up to my knees in a stinking oily swamp, with vicous red ants biting me in all the places that I could not scratch and leeches inside my rubber boots. However, the experience was not new, and I had reached the stage where I could pick them off without hysterics for the element of surprise had gone long before, even with leeches.

Then all at once, on a small paperbark tree, there was my first *Dendrobium johannis,* a beautiful sturdy plant, and then we found them on almost every tree, in all colour combinations of white, yellow and brown, the loveliest of all the almost pure yellows. They were there in countless numbers, and they could not have had a more secure habitat, for although the ground shone with streaks of red, blue and green, it had been tested, and there was no oil deposit worth looking at.

How far the swamp went, I don't know, but I remember it was as far as the eye could see, swamp and melaleuca trees. When it takes you at least three minutes to haul your foot out of over half a metre of mud, you tend to lose count of time and go by the sun, so we pushed on and very soon came to large colonies and they were in flower, so we could collect enough to make comparisons. One was almost pure white, another half white, half yellow petals with a deep purple labellum and side lobes, and some with the petals and sepals almost red-brown, even darker, and flowers about 25 mm across.

So these were the other half of the answer ... *Dendrobium canaliculatum,* beautiful compact plants and better than I had ever seen elsewhere, including Australian species. Obviously, the dirtier the swamp, the better they liked it, and I think both these little loves will be safe there for evermore, what else you could do with a swamp that never dries out, I don't know.

I do believe, however, that there are more little orchids in that part of the world, that have passed to, or from Australia than we have yet seen . . . but they will always be, happily, Australasian.

Top: *Dendrobium johannis.* The yellow form from the swamps behind the Binaturi River. Above: Alick Dockrill and Andree Millar with the first *Dendrobium lasianthera* after they found it in the swamps of the Sepik River in 1967. The expedition with Len Lawler was financed by the Laura Bushell Fund. – *Photos: Andree Millar.*

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The Heated Glasshouse for the Handyman

by Athol Leece

Generally speaking, commercial glasshouses are not constructed to provide good insulating properties. I guess the reason is that they are not designed for growing exotic orchids which require a reasonably strict control of extremes of temperature. Having used a small commercially designed glasshouse for several years, I decided to design and build my own glasshouse giving special attention to insulating qualities.

Being a handyman I was able to complete the total construction without the assistance of tradesmen. This approach obviously kept the total cost at a reasonable level.

I used common house bricks and hard wood supports for the main construction members. Although hard wood is more difficult to work with than soft wood, it is much more durable being almost unaffected by water and various pests which attack other types of timber.

The house measures approximately 6 m x 4 m with a skillion roof of maximuim height 3 m and a fall of about 30 cm.

The bricks are bedded onto a reasonable concrete foundation.

The southern face being the 3 m high face, is completely bricked in as little light comes from the south at any time of the year. The remaining three faces are bricked up only to about bench height (1 m) except for the roof support piers which are built up vertically to the relative heights necessary.

The E, W, & N faces are glazed between the support piers with normal zinc coated glazing bars and horizontally installed glass panels. The door is positioned in the western face. The eastern face has two louvred windows

Unheated house looking onto door in western face and fully glazed northern face.—*Photo: Athol Leece.*

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0.5 m wide extending from the brick base to the roof.

Apart from the door, louvred windows and the southern wall, the entire internal area is lined with sheet Agrifab. This large air gap (about 10 cm) between the glass and the Agrifab gives very good insulating properties.

The roof area is covered externally with translucent corrugated sheet Alsynite.

The floor is covered with about 15 cm of ashes.

For the winter months, I cover the louvred areas with Agrifab. During the coldest winter nights when the external temperature drops to around 0 deg C, the internal temperature rarely drops below 8 deg C.

No fan has ever been installed.

This house enabled me to increase the number of genera I could grow and flower successfully, but it was not the answer to growing a full range of exotics.

I succeeded in flowering Ascosendas but could not prevent black spots developing on the foliage during the winter months. Cattleyas presented some problems. They grew extremely well and flowered quite successfully during spring summer and autumn but in winter the buds emerged from their sheaths, started to swell then damped off, turned brown and fell from the stems.

Several years later I decided to treat myself to another double insulated house. This time my intention was to grow and flower a reasonable variety of exotics by installing heating, cooling and air circulating devices.

Heated house looking onto eastern face with door open.—*Photo: Athol Leece.*

Again I constructed the house using common house bricks and hardwood timber as main members. The brickwork was built up to just above bench height on all four sides. For the remainder of the main structure including the main support members at the corners, I used hardwood. I pitched the roof this time to a height of approximately 4 m. I covered the entire hardwood frame with translucent flat sheet fibreglass inside and outside. The door was positioned in the eastern face and double insulated hopper windows positioned, one in the western face and one in the eastern roof.

The house is 5 m x 3 m to allow a reasonable bench area.

Inside heated house facing west showing cooler hopper window and Envirotrol Mk1.—*Photo: Athol Leece.*

In the western face just below the hopper window, I installed a second hand air cooler (cost $50.00) and under the bench in the same area, a second hand room heater with fan (cost $20.00). I bought a new $20.00 kitchen exhaust fan which I fitted fairly high in the centre of the house near the eastern end.

All these devices are plugged in to a MARK ONE ENVIRATROL UNIT which has functioned very reliably for 3 years. The fan operates 24 hours a day, cutting out only when the air cooler turns on. I set a minimum temperature of 14-15 deg. C for winter and maximum 29-30 deg C for summer.

The floor is covered with ashes to a depth of about 30 cm enabling me to maintain reasonable humidity at all times. The house is covered with 50% green shade cloth.

By employing the large air gap between the two sheets of fibreglass I can operate the electrics on a miserly amount of electricity. I now grow and flower successfully, Phalaenopsis, Vandas and other Vandaceous, Hardcane Dendrobiums and a host of other exotics which need to be kept warm in winter.

During the warmer months (November to May), I transfer most of the plants to the shade house under 50% shade cloth.

It is interesting to observe the line of demarkation on the Vandaceous orchids from the point of transfer from cold to warm glasshouse — no black spots on the new foliage.

If you are a handyman why not try something similar. The effort is well worth while and the cost reasonable.

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Sydney Tropical Centre

The Sydney Tropical Centre, a complex of spectacular glasshouses and outdoor plantings at the Royal Botanic Gardens Sydney, tells the story of the world's ecologically rich tropical forests.

The Centre was opened on 16 September by Rear-Admiral Peter Sinclair, before a large gathering of invited guests.

The tropical rainforests are the most exciting, most complex and most crowded ecosystems in the world. They provide mankind with a cornucopia of food and horticultural plants, shelter materials, chemical and pharmaceuticals. They support large indigenous populations. They are the habitats for a multitude of wildlife species and influence the world's weather patterns.

The focal point of the Centre are the large glasshouses — the Arc and the Pyramid. The glasshouses are essential life support systems for Australian and overseas tropical plants that otherwise would be unable to survive Sydney's warm temperate climate. The Arc is a huge new glasshouse built at a cost of $4m. The construction of this vast building, which covers 600 square metres, involved the fitting of 1150 individually cut panes of 10.38mm laminated Belgian glass.

The curved dome, like a giant wave rolling over the Gardens, is divided into two sections with plantings of exotic (overseas) tropical specimens on three levels. The larger, western end contains plants of the hot, moist tropical lowlands. The smaller, eastern section contains tropical plants of the cooler, higher altitude (montane) regions. It is expected that this section will eventually have a misting system to provide the appropriate high altitude atmosphere.

A water course, lined by rocks and

ferns, runs the length of the Arc at ground level. Visitors walk through the Arc along platforms on two levels — a veritable climb through the treetops.

Plants in the Arc are grouped to highlight the strategies or adaptions they have evolved to cope with life in the tropical forest, rather than accord-

Continued on page 47

SHOWDATES

DATE	TIME	SEASON	ORCHID SOCIETY	SHOW ADDRESS
New South Wales				
12-14 October	8.00am-5.00pm	Spring	The Orchid S.P.E.C.I.E.S. (NSW)	Flower Power Nursery 609 Old Northern Road Glenhaven
26-27 October 28 October	9.00am-9.00pm 9.00am-1.00pm	Spring	The Northern Rivers Orchid species	Lismore Shopping Square McKenzie Street Lismore
Queensland				
18-21 October	8.30am-5.30pm	Spring	The Southport and Districts	Burleigh West Shopping Centre Lower Burleigh Road Burleigh
26 October 27 October	9.00am-6.30pm 9.00am-8.00pm	Spring	Herbert River and Allied Plant	Barra's Showroom Herbert Street Ingham
Victoria				
13 October 14 October	10.00am-5.00pm 11.00am-5.00pm	Spring	Ballarat	St. Pauls Hall Victoria Street Ballarat
19-20 October 21 October	10.00am-7.00pm 10.00am-5.00pm		Ararat	Ararat Town Hall Barkly Street Ararat
20 October 21 October	9.00am-6.00pm 9.00am-4.00pm	Spring	Yarra Valley	Arts and Entertainment Centre Main Street Warburton
26 October 27 October 28 October	1.00pm-8.00pm 10.00am-8.00pm 10.00am-4.30pm	Spring	Midland	Library Hall Barker Street Castlemaine
2-3 November	10.00am-5.00pm	Spring	Cobden	Church of England Sunday School Hall Cobden

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HONORARY EDITOR:
David R. Wallace
EDITORIAL COMMITTEE:
A. Alvis, D. P. Banks, G. Hansen, A. Merriman, D. R. Wallace.
ADDRESS EDITORIAL TO:
The Editor, Australian Orchid Review, 14 McGill Street, Lewisham, NSW 2049 Australia. Phone: (02) 560 6166.
EDITORIAL ASSOCIATES:
QUEENSLAND:
Mr Frank Oelkers, 419 Robinson Road, Geebung 4034.
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TO JOIN AN ORCHID SOCIETY contact these secretaries:
NSW: Miss B. Oldfield, 61 Mountford Avenue, Guildford 2161.
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Phone: (07) 273 1127.
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NORTHERN TERRITORY: Honorary Secretary, P.O. Box 38493, Winnellie 5789.
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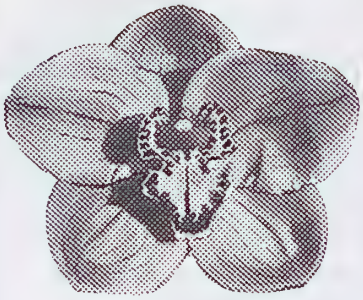

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From page 45

ing to their country of origin or family.

At ground level of the hot, moist section, the defensive strategies adopted by tropical plants is explained. This area exhibits the toxic, stinging and noxious plants. Other plants along the water course are grouped to demonstrate how river-bank aquatic vegetation copes with regular inundation by fast-running streams. It shows how tropical river bank plants obtain oxygen and develop their reproductive processes.

An adjacent area features the tropical economic plants which provide food, beverages, spices, timber, rubber, tannin, chemicals and drugs to name a few of their products. The tropical forests provide the modern world with countless food plants such as fruits, sugar, spices and many more. They are the source of original plant species to renew diseased crop plants and maintain genetic diversity. The forests are the source of much of the world's medicinal drugs such as curare, strychnine, quinine and anti-cancer precursors. It is likely that many plants that produce a source of life-saving drugs are yet to be discovered. Current research on tropical plants is seeking cures for cancer and AIDS.

Above this level, the food and water strategies of tropical plants is explained. Some of the fascinating specimens in this section are the ant plants which support colonies of ants in their hollow leaves, stems and bulbs high above the forest floor. The plants provide the ant colonies with accommodation with a source of nectar. The ants in turn protect the host tree from insect predators and nourish the plants with their waste and carcases — a micro-ecosystem in the tree tops.

Other plants in this section are the carnivorous plants which snare insects and the bromeliads which trap water in tanks suspended in the forest canopy.

The highest level of the hot tropical section shows the pollination strategies of the plants. Some trick insects into pollinating them by pretending they are the female of the species or by giving off intoxicating scents to entice pollinators.

Overall, the centre shows that the tropical regions support the world's richest community of plant life. It points out that indigenous people have lived in the tropical forests for centuries without damaging the complex environment, but clearing for agriculture and timber logging now threatens their way of life. It is an absorbing and wondrous living display of a vital plant region of planet Earth.

Horticultural botanists of the Royal Botanic Gardens have undertaken expeditions to the rainforest of Brazil and other parts of South America, the jungles of New Guinea, the islands of the Pacific and the tropical forests of south-east Asia and Africa to collect specimens for the Arc.

The Sydney Tropical Centre has been two years in the making. It is the most significant NSW public building opened in 1990 and probably of the decade.

The Arc was made possible by funding provided by the NSW Government, G. Hermon Slade, of Vanuatu, the N and H Slade Trust, BP Australia Pty Ltd and public donations.

Further information, Joe Glascott, 231 8162, or Robyn Bern, 231 8118.

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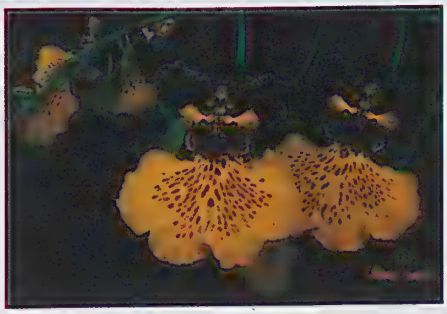

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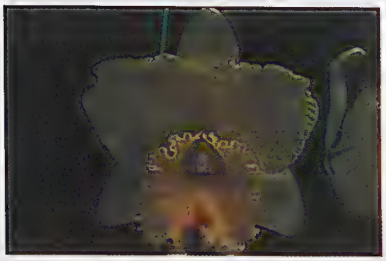

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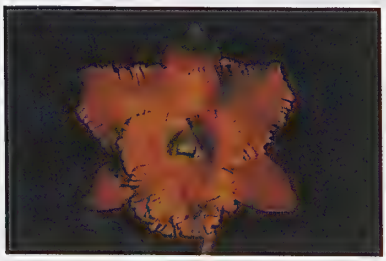

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Dendrobium
A Review of

By David P. Banks and

SUMMARY

In this paper *Dendrobium speciosum* Sm. var. *bancroftianum* Reichb.f. and *D. jonesii* Rendle subsp. *bancroftianum* (Reichb.f.) M. Clements et D.Jones are reduced to synonyms of *D.* X *gracillimum* (Rupp) Leaney.

D. ruppianum A.Hawkes forma *magnificum* (Dockr.) Dockr. is given a new combination and status as *D. jonesii* subsp. *magnificum.*

D. speciosum Sm. var. *nitidum* F.M.Bail. and *D.* X. *nitidum* (F.M.Bail.) M.Clements et D.Jones are reduced to synonyms of *D.* X. *gracillimum.*

D. speciosum Sm. var. *hillii* Masters, *D. speciosum* Sm. var. *grandiflorum* F.M.Bail., *D. speciosum* Sm. var. *capricornicum* S.C.Clemesha, *D. speciosum* Sm. var. *curvicaule* F.M.Bail. and *D. speciosum* Sm. var. *pedunculatum* S.C.Clemesha are raised to sub species rank.

D. kestevenii Rupp var. *coloratum* Rupp is shown to be a normal example of *D.* X *delicatum* (F.M.Bail.) F.M.Bail. and not a backcross with *D. kingianum* Bidw. ex Lindley.

INTRODUCTION

The authors of this paper have made an intensive and thorough study of *Dendrobium speciosum* over the last 15 years. We have travelled all over the habitat of this species and examined literally thousands of plants and their flowers — both in situ and cultivation.

We have also examined and documented herbarium specimens as well as the essential Type specimens and their photographs.

We reject the recently published Mark Clements and David Jones treatment of this species (Clements, 1989) and believe many of the name changes show a poor and unconventional understanding of the concept of a species.

It unfortunately becomes obvious their research into this variable taxon has been rushed and incomplete as some vital Type specimens and/or their photographs were not studied despite their availability.

It is very important that their errors are corrected before publication of the orchid volume of *Flora of Australia,* otherwise they may be repeated at a later date.

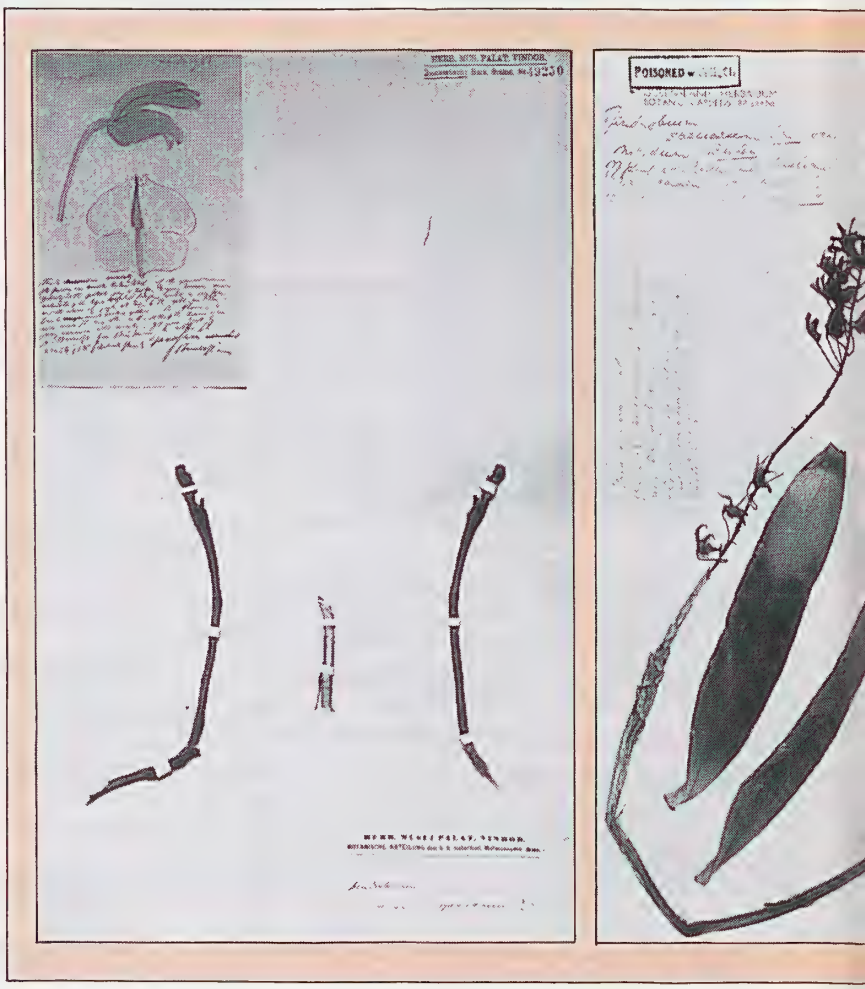
D. speciosum Sm. var. *bancroftianum* Reichb.f.

Clements & Jones give this a new combination and status as *D. jonesii* subsp. *bancroftianum.* Obviously they did not examine the Type specimen or the photograph of it published in *The Orchadian* Vol.6, No.12, 271-272 (June 1981).

The slender parallel sections of pseudobulbs and hand painted line drawings of flowers do not even match the most extreme example of *D. jonesii.* The Type sheet has a handwritten copy of the original description with minor variations;

"This is distinctive variety. Its flowers are much like those of the genuine plant but the petals are a trifle longer hence more antennate and the lip is lightest sulphur with a very few minute atoms of purple at base and the callus at the base is (orange) and darker yellow. The stem is even more slender than is *D. hillii* Hk. Leaves are very narrow in width. It was sent by Dr. Bancroft from Brisbane to his friend. Den. speciosum (Concolor) Bancroftianum."

The words in brackets have been crossed out. The Type photographs of *D. speciosum* var. *bancroftianum* match *D.* X *gracillimum* well and both *D. speciosum* var. *bancroftianum* and *D. jonesii* subsp. *bancroftianum*



Left to right: *D. speciosum* var. *bancroftianum.* Type specimen, note slender pseudobulbs. *D. speciosum* var *nitidum.* Probably the type. Handwritten label by F.M. Bailey. *D. speciosum* var *nitidum.* Another clone. Field label by F.M. Bailey. Herbarium label – C.T. White.

speciosum: the Species

Stephen C. Clemesha

should be regarded as synonyms of it.

The large flowered form of *D. jonesii* formerly called *D. ruppianum* forma *magnificum* therefore is unnamed. The following combination is to rectify this situation:

D. jonesii Rendle subsp. _magnificum_ (Dockr.) D.P.Banks et S.C.Clemesha Comb.nov.et stat.nov.

Basionym: *D. fusiforme* (F.M. Bail.) F.M. Bail. var *fusiforme* forma *magnifica* Dockr., N.Qd.Nat. 24, no.114 (1956) 24.

Type: Bellenden Ker, North Queensland. Oct. 1951 J.K.Wilkie (NSW!)

Synonym: *D. ruppianum* A.D. Hawkes var. *ruppianum* forma *magnificum* (Dockr.) Dockr., Aust. P1.3 (1965) 223-225.

This subspecies flowers later than *D. jonesii* subsp *jonesii* and its flowers are larger with wider sepals. Clones with albanistic labellums are frequently encountered above 1000 meters altitude on locations such as the Atherton Tableland (M. Harrison pers.comm.).

Specimens with normal purple labellum markings are more frequently encountered in cultivation.

D. speciosum Sm. var. _nitidum_ F.M.Bail.

The sole basis for Clements & Jones raising this taxon to hybrid status as *D.* X *nitidum* seems to be that Bailey gave the Type locale as Cairns and the habitat 'Tropical Queensland' in *Queensland Flora.*

The Type was taken from a plant cultivated in the bushhouse at Bowen Park. Its collector was unknown. Unfortunately many of the stated collection localities of other plants at Bowen Park have obviously been incorrect.

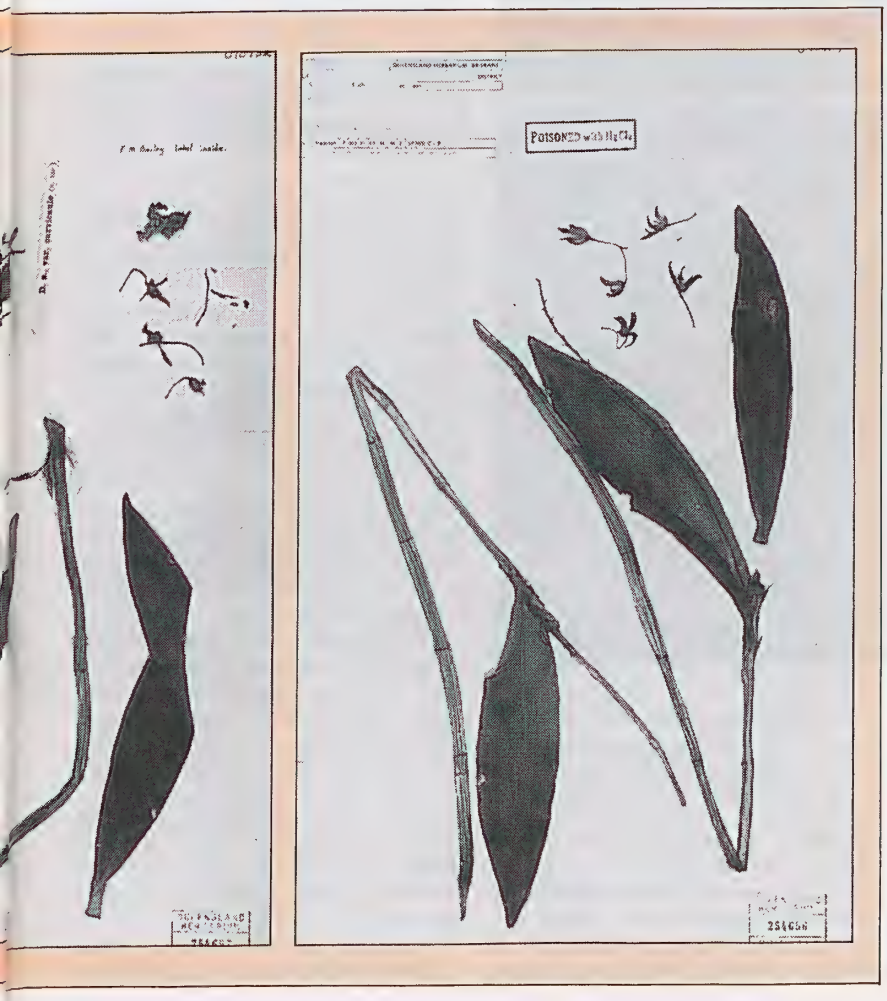
Clements & Jones give the likely parentage of this hybrid as *D. gracilicaule* x *D. speciosum* subsp. *pedunculatum* (as *D. pedunculatum*). If the hybrid really came from North Queensland, which we doubt, it would be a hybrid between *D. gracilicaule* and *D. speciosum* subsp. *curvicaule;* as *D. speciosum* subsp. *pedunculatum* grows in drier habitats from which *D. gracilicaule* is absent.

Clements & Jones chose as a Neotype a specimen with a handwritten comment by Bailey;

> "This seems only to differ from the specimens I described my *Dendrob. speciosum* var. *nitidum* from in its yellow blooms and in the normal form the white or yellow colour is not constant and the dots upon the leaf which may be a disease."

This comment makes it obvious that this specimen is not what Bailey considered to be the Type. Clements & Jones state it is the only specimen with Bailey's handwriting on it. This is incorrect. Another specimen has a handwritten label by Bailey. Dr.R.W.Johnson from the Queensland Herbarium has told us that this could be the Type. Attached to this is a handwritten note by H.M.R.Rupp stating:

> "I cannot distinguish between these specimens of *D. speciosum* var. *nitidum* (except the Tamborine Mountain plant)* and the N.S.W. form named by me in 1929 — *D. speciosum* var. *gracillimum* and I believe them to be identical. If this be so, the varietal name *gracillimum* must disappear. I did not consider var. *nitidum* when describing the N.S.W. form because (1) I had been shewn (sic) a form supposed to be *nitidum* which is quite different from the Q'land Herbarium specimens, (2) F.M. Bailey gives for *nitidum* the locality 'Tropical Queensland'. Although var. *gracillimum* differs from the type *nitidum* in *Queensland Flora* in often having fewer flowers, coloured cream or yellow (as well as sometimes being white), the whole character of the two agrees so closely that it does not seem worthwhile maintaining varietal separation.
> Weston N.S.W. 9-11-31 H.M.R. Rupp"



* The Tamborine Mountain plant Rupp refers to is a clone of *D.* X *delicatum* with slender pseudobulbs. It was collected by Mrs. Hilda Curtis in September 1924 and thus was not seen by F.M. Bailey who died in 1915. Mrs Curtis gave a division of this plant to Murray Corrigan stating it was *D. speciosum* var. *nitidum* and had been identified by the Queensland Govt. botanist (possibly C.T.White).

Mrs Curtis' plant is illustrated in Nicholls' *Orchids of Australia* (plate 401) as *D. speciosum* var. *nitidum*. The present authors have cultivated this clone for over 10 years.

D. speciosum var. *nitidum* was published earlier than *D. speciosum* var. *gracillimum* and this is why Rupp stated the latter name should disappear. *D. speciosum* var. *bancroftianum* is earlier than both so is the correct name for this hybrid at varietal rank, whilst *D.* X *gracillimum* is the correct name at specific level.

There is no evidence to suggest that *D. speciosum* var. *nitidum* is anything but a hybrid between *D. gracilicaule* and *D. speciosum* subsp. *hillii*. It is important to note the specimen Clements & Jones chose as the Neotype has leaves reminiscent of *D. speciosum* subsp. *hillii;* long and somewhat oblong.

D. speciosum var. *nitidum* and *D.* X *nitidum* should be regarded as synonyms of *D.* X *gracillimum*.

Top left: *D. speciosum* subsp. *speciosum* 'Lynette'. Fine clone from Arcadia. Below left: *D. speciosum* subsp. *speciosum*. Spotted clone from Mangrove Mountain – *Photos: D. Banks.*

Dendrobium speciosum Sm., Exotic Bot.1:7,t.10 (1804) and its subspecies.

Dendrobium speciosum is one of Australia's most spectacular plants and has been widely cultivated and studied by orchid growers and botanists for over 100 years.

This name has been accepted as either one variable taxon or as one falling into six varieties which on the whole are distinct. Intermediate forms are sometimes encountered where the distributions of some varieties overlap.

As each variety basically has a separate distribution, the present authors consider they should be raised to subspecies status.

We therefore make the following new combinations;

Dendrobium speciosum Sm. subsp. *speciosum* Sm.

Dendrobium speciosum Sm. subsp. *hillii* (Masters) D.P. Banks et S.C. Clemesha

Dendrobium speciosum Sm. subsp. *grandiflorum* (F.M. Bail.) D.P. Banks et S.C. Clemesha

Dendrobium speciosum Sm. subsp. *capricornicum* (S.C. Clemesha) D.P. Banks et S.C. Clemesha

Dendrobium speciosum Sm. subsp. *curvicaule* (F.M. Bail.) D.P. Banks et S.C. Clemesha

Dendrobium speciosum Sm. subsp. *pedunculatum* (S.C. Clemesha) D.P. Banks et S.C. Clemesha

***Dendrobium speciosum* Sm. subsp. *speciosum* Sm.**

This subspecies is well known in New South Wales as the "Rock Lily". An unfortunate common name as it is not always confined to rocks and is certainly not a lily.

It is one of our most impressive orchids and a plant commonly cultivated in pots, on trees and in rockeries by orchid growers and gardeners for its impressive spring floral display.

The Type specimen was collected at Port Jackson, New South Wales where it is now almost extinct.

It is generally a lithophyte on sandstone in open sclerophyll forest however in some localities, ie Kangaroo Valley, it forms part of the rainforest flora as an epiphyte.

Cane length varies considerably. Those from exposed, drier locations (eg, Mt. White, Fiddletown) are commonly shorter, with erect litter/rain collecting leaves — whilst those from forested areas (eg. Wattagan Range) are taller with larger leaves. This trait is genetic and maintained in cultivation. Compact forms exist within all six subspecies.

Three unusual forms are in cultivation;

1) Albanistic form. A clone from Peat's Ridge known as 'Purity'

which carries normal anthocyanins in its pseudobulbs but the labellum lacks any purple markings.

2) Semi-Varigated form. From Mt. White, this plant consistently produces dark and very light green striped leaves.
3) Spotted form. The original habitat of this clone from Mangrove Mt. was destroyed early 1980s due to flooding for the dam. This desirable clone exhibits deep cream flowers with distinctive deep purple spots and striations through the sepals. The labellum is darker than most clones. It has maintained this characteristic over successive flowering seasons, and its dominance and impact on future hybrids is unknown. We also know of a handful of similar clones (two from the same location) however the degree of spotting is variable and inconsistent from year to year.

Dendrobium speciosum has evolved to survive a wide range of temperature fluctuations and periodical stress from drought and bushfires. Most adult clumps reshoot after fire from dormant eyes located on older pseudobulbs, protected in the middle of the plant.

Colonies within the Bouddi National Park grow on sandstone cliffs overlooking the Pacific Ocean and obviously tolerate salt-spray. Populations on limestone at Jenolan Caves frequently get blanketed with snow several times each winter with no harmful effects on the plants.

This subspecies is distributed from Genoa and Cann River, eastern Victoria northwards to Alum Mountain (coast) and Munghorn Gap, near Mudgee (inland) in New South Wales. It is interesting to note that Munghorn Gap is some 200 km from the coast.

***Dendrobium speciosum* Sm. subsp. *hillii* (Masters) D.P. Banks et S.C. Clemesha. Comb.nov.et. stat.nov.**

Basionym: *D. speciosum* Sm. var. *hillii* Masters, Gard. Chron.7, (January 27,1877) p. 112, 114. (Holotype Kew)

Synonyms: *D. hillii* Hook., Curtis's Bot. Mag. 87 (1861) t. 5261 (illegitimately published) non. F. Muell. 1859 (now *Sarcochilus hillii* (F. Muell.) F. Muell.)

D. tarberi M.Clements et D.Jones, Cat. Austr. Orch. 62, (1989)

In giving this plant specific rank, Clements and Jones claim that *D. speciosum* subsp. *speciosum* lacks aerial roots whilst subsp. *hillii* (As *D. tarberi*) and subsp. *grandiflorum* (as *D. rex*) always have them.

This is incorrect. We have observed aerial roots on clones of *D. speciosum* subsp. *speciosum* from the following localities; Munghorn Gap, Cessnock, Paterson, Mangrove Mountain, Arcadia, Wedderburn Gorge and parts of the Kangaroo Valley. Other clones from these localities lack them.

The degree in which clones of *D. speciosum* subsp. *hillii* produce aerial or litter collecting roots varies greatly.

In some clones production is great; eg, Tamborine Mountain and the Numinbah Valley in south-eastern Queensland and Mt. Warning, Allyn River and Ellenbourgh Falls in New South Wales. Whilst in other clones it is only slight to non existant; eg, Wyberba, Tenterfield and Dorrigo. There is a great deal of variation within different clones from the same locality, eg, Toowoomba, Coramba and Comboyne.

Variations also occur within populations of *D. speciosum* subsp. *grandiflorum* and we also have a couple of clones of *D. speciosum* subsp. *curvicaule* from the Eungella Range which produce aerial roots.

D. speciosum subsp. *hillii* differs from *D. speciosum* subsp. *speciosum* in having more slender pseudobulbs that are of near even diameter throughout. Flowers are smaller, more numerous with a proportionally smaller labellum. Flower colour is generally cream to white, however pale yellow clones exist. An albino form from near Toowoomba is in cultivation.

Top right: *D. speciosum* subsp. *hillii*. White form from Comboyne – *Photo: D. Banks.* Below right: *D. speciosum* subsp. *hillii*. Large plant in garden at Toowoomba, with David Banks – *Photo: J. Roberts.*

In areas where the two subspecies ranges meet, intermediate characteristics are evident. eg, plants of subsp. *speciosum* from near Cessnock have more numerous flowers than is usual for this subspecies from further south. Isolated clones of subsp. *hillii* from Mangrove Mountain and the northern Wattagan Range have more spaced flowers than is usual for this subspecies.

A dwarf race is encountered as a lithophyte in the 'Granite Belt' of the NSW/Qld border, centred on the Girraween National Park. The tapered pseudobulbs are up to 30cm tall — commonly less. The flowers are identical to those of subsp. *hillii* but are much more widely spaced on the inflorescence. The reduced size and number of flowers is probably the result of a colder and drier habitat. A similar form occurs at the Warrumbungle Mountains, near Coonabarabran.

D. speciosum subsp. *hillii* is distributed from Peat's Ridge, on the central coast of New South Wales (where it may now be extinct due to habitat destruction) northwards to South-eastern Queensland. The exact north-

Top right: *D. speciosum subsp. grandiflorum.* Clone from Kroombit Tops. Below right: *D. speciosum* subsp. *grandiflorum.* Clone from Mt Larcom – *Photo: D. Banks.*

ern limit is unknown as intermediates occur with subsp. *grandiflorum,* however it would roughly be from around Crows Nest to the Mt. Glorious area.

D. speciosum Sm. subsp. _grandiflorum_ (F.M. Bail.) D.P. Banks et S.C. Clemesha. Comb.nov.et. stat.nov.

Basionym: *D. speciosum* Sm. var. *grandiflorum* F.M. Bail., Botany Bull. Dep. Agric. Qld. 14 (1896) 12

Synonyms: *D. speciosum* Sm. var. *hillii* Masters forma *grandiflorum* (F.M. Bail.) F.M. Bail., Qld. F1.5 (1902) 1526. Type: Bowen Park Bush House ex cult. Eumundi (Bri!)

D. speciosum Sm. forma *grandiflorum* (F.M. Bail.) Kranzl., Pflanzenreich Heft 45 (1910) 271.

D. rex M. Clements et D. Jones, Cat. Austr. Orch. 60 (1989).

Of *D. speciosum* forma *grandiflorum* (F.M.Bail.) Kranzl., M.A.Clements in his Preliminary Checklist of Australian Orchidaceae gives the reference to this as *D. speciosum* forma *grandiflorum* (Bailey) H.G. Reichb., Beitr. Syst. Pfl. 271 (1871).

This is an impossibility as Reichenbach died in 1889 — *D. speciosum* var. *grandiflorum,* on which it was based, was not published until 1896.

Of subsp. *grandiflorum* Clements & Jones state (as *D. rex*) "Plants of this species are rather large and similar in habit to those found in *D. tarberi* (*D. speciosum* subsp. *hillii*). *D. rex* consistently has erect, cylindrical or slightly fusiform pseudobulbs". They also state that compared to *D. speciosum* subsp. *hillii* (as *D. tarberi*) this species has large, stellate, bright yellow, sometimes cream-coloured flowers with labella heavily marked with deep mauve-blue blotches.

D. speciosum subsp. *grandiflorum* like most orchids has horticulturally good and poor forms. Unfortunately most are not so wonderful as Clements

& Jones description. Plant habit is variable — not all are large. Those from rainforest localities are large and identical to many plants of subsp. *hillii* out of flower. From drier localities lithophytic plants are much shorter, usually below 50cm. eg, Kroombit Tops, Calliope, Miriam Vale and the western cliffs of Bunya Mountains. Some have stems which are tapered and others we have observed at the Bunya Mountains are strongly curved.

Flowers mostly are not stellate but remain partly closed — rather like a crabsclaw. Some clones open more widely than others and all open more in warm weather or in a glasshouse.

Flower colour is also variable. The majority of clones open a deep creamy-yellow and mature over the next 4 or 5 days to various shades of buttercup yellow. At the extreme north of its range, ie Kroombit Tops and Mt. Larcom, its most spectacular and deeply coloured forms are found — bright yellow maturing to deep gold. These superior clones are highly valued in enthusiasts' collections.

In the extreme south of its range, eg Mt. Mee, Mt. Glorious and Mt. Binga (near Blackbutt), flowers range from pale yellow through to deep cream and white and variable in size. It is difficult to say where subsp. *hillii* stops and subsp. *grandiflorum* starts.

Intermediate forms occur because there are no geological or physical barriers between the two subspecies.

Dendrobium speciosum appears to be absent from the Glasshouse Mountains, as this location is on the border of the two subspecies. We suspect it never grew there, as suitable niches exist where it would be almost impossible for it to be removed.

The labella of flowers are stated to be heavily marked with deep mauve-blue blotches. A minority are. Most are lightly to heavily marked. This characteristic is variable within all *D. speciosum* subspecies and on the whole are not heavier than the others.

In *D. speciosum* subsp. *grandiflorum* the degree of aerial root production again is variable. Lithophytic clones from its northern distribution range eg, Mt. Larcom and Calliope do not produce any at all: Variable populations occur at Kroombit Tops, Kalpowar and the Bunya Mountains.

Generally epiphytic clones produce the greater number of aerial roots whilst they are commonly absent on lithophytic clones. This trait is maintained in cultivation. Extensive aerial root production is particularly evident throughout southern populations. eg, Amamoor Creek, Imbil and Jimna.

In its typical form, *D. speciosum* subsp. *grandiflorum* is roughly distributed from the imaginary line between Caboolture, Crows Nest and the Bunya Mountains, northwards along the ranges to Mt. Larcom north of Gladstone where it is now under serious threat due to overcollecting.

Top left: *D. speciosum* subsp. *capricornicum*. Type plant from Mt. Jim Crow – *Photo: S Clemesha.* Below right: *D. speciosum* subsp. *capricornicum*. Pale clone from Carnarvon Gorge – *Photo: B. Mules.*

D. speciosum Sm. subsp. _capricornicum_ (S.C. Clemesha) D.P. Banks et S.C. Clemesha. Comb.nov.et stat.nov.

Basionym: *D. speciosum* Sm. var. *capricornicum* S.C. Clemesha, Orchadian 7 (5): 103-6, f.2,3,4 & 6 (1982)

Type: Mt. Jim Crow, about 8 km inland from Yeppoon (holo Bri!)

Clements and Jones state the holotype is at NSW. This is incorrect. The holotype is at Brisbane and a specimen from the same plant collected the following year is in the NSW National Herbarium.

Of subsp. *capricornicum,* Clements & Jones state "The description of habitat and habit of plant, are consistent with those described for *D. curvicaule."* (ie *D. speciosum* subsp. *curvicaule.*)

A photograph of *D. speciosum* subsp. *curvicaule* was published in the *Australian Orchid Review* (Spring 1988) p.21 and labelled *D. speciosum* var. *capricornicum.* It is doubtful that this plant was collected near Yeppoon. Possibly Clements & Jones mistook this to represent subsp. *capricornicum,*

as it is rarely encountered in cultivation and frequently mislabelled.

One of the authors was recently shown two clones of *'capricornicum'* in the collection of Gerry Walsh, the result of a trade with a nursery in Queensland. One clone upon flowering proved to be a typical tall growing subsp. *curvicaule,* whilst the alleged 'Mt. Jim Crow' plant is obviously a mislabelled subsp. *pedunculatum.*

There are two distinct populations of this strictly lithophytic subspecies. We will refer to them as the coastal (typical) and inland forms. Both forms require high light intensities for optimum flowering.

Typical examples of this subspecies are found only in a comparatively localised area on volcanic plugs and ranges (eg, Bouldercombe and the Berserker Range.) near Rockhampton, Qld. Here the pseudobulbs and short, thick lanceolate leaves are rather pale in appearance. These leaves are very hard and snap easily if bent. The inflorescenses have a long peduncle and white to cream flowers which are produced from May to July with fairly short but tapered sepals. The individual flowers are not particularly horticulturally attractive however the long spike on such a compact plant is impressive.

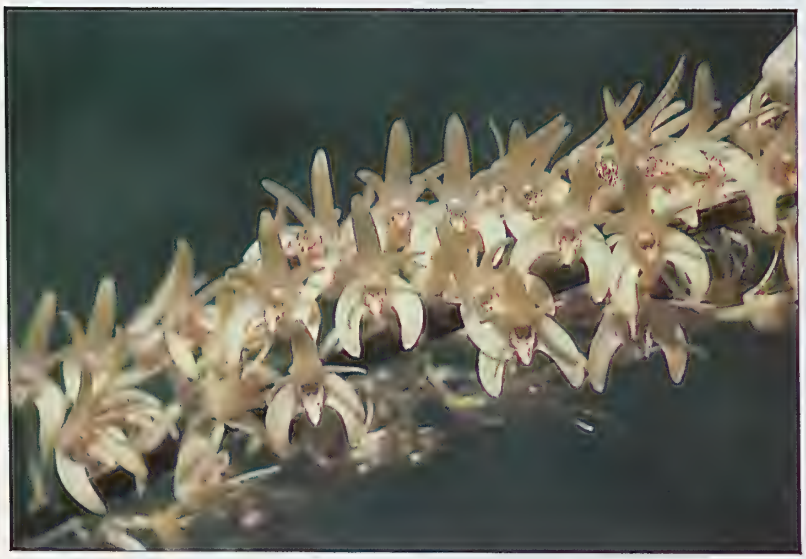
These coastal populations were never common due to lack of suitable habitats, and are now threatened by indiscriminate collecting and fires.

This subspecies is quite distinctive from the type locality, however the inland relic populations from the Blackdown Tableland and Carnarvon Gorge have obvious ancestral links with subsp. *grandiflorum* (not subsp. *curvicaule*) and could be classified as intermediate forms. Aerial roots are absent in this subspecies.

Specimens from the Blackdown Tableland and Carnarvon Gorge differ from the Type population in having yellow to deep cream flowers, a short peduncle and spring flowering. The pseudobulbs are darker and more robust than the coastal plants. New growths are stained with dark purple pigment and mature to a dark green. All of these habitats are widely separated from each other by areas of dry plains.

Jones in *Native Orchids of Australia* states that 'those from inland regions flower earlier'. This is incorrect as the coastal forms flower six to ten weeks before the inland populations.

As the name suggests, this subspecies is located on and near the Tropic of Capricorn in central Queensland from the coast to 420 km inland. Despite the close proximity (70 km) between the type locality (Mt. Jim Crow) and the northern point for subsp. *grandiflorum* (Mt. Larcom), the changeover is clearcut with no intermediate forms occurring.



Left: *D. speciosum* subsp. *curvicaule.* Clone from northern end of distribution – *Photo: D. Banks.*

***D. speciosum* Sm. subsp. *curvicaule* (F.M. Bail.) D.P. Banks et S.C. Clemesha. Comb.nov.et stat.nov.**

Basionym: *D. speciosum* Sm. var. *curvicaule* F.M. Bail., Botanical Bull. 14, (1896) 12. Type, Ex Cult. Bowen Park bush house. Locality unknown.

Synonym: *D. curvicaule* (F.M. Bail.) M. Clements et D. Jones, Cat. Austr. Orch. 51 (1989)

Bailey gave the habitat as "Lady Elliot Island from whence Mr. Soutter received the plants now (September) flowering in the bushhouse, Bowen Park."

Lady Elliot Island is a true coral cay that has no suitable *D. speciosum* habitats and is adjacent to the coast where subsp. *grandiflorum* occurs. The natural flora of the island was destroyed by phosphate miners who literally lowered the island about 5 metres. After the miners left goats were introduced and they prevented any flora regeneration until they died out in the early 1960s. Following this many trees were planted and the island no longer is the desolate denuded land it was. The forests of coral cays are fairly dry and *D. speciosum* is not known from any of the cays found north of Lady Elliot Island.

D. speciosum subsp. *curvicaule* was named because the Type plant had curved stems. This was an unfortunate choice of name as this can occur in all subspecies of *D. speciosum* except subsp. *pedunculatum.* Plants of subsp. *grandiflorum* observed in situ at the Bunya Mountains were curved into a full halfcircle.

The flowers of subsp. *curvicaule* differ from the southern subspecies by having proportionately shorter, broader sepals and petals and a well displayed labellum.

The sepal shape differs from that of subsp. *capricornicum* in being less tapered. The labellum of the latter is shorter in proportion to the rest of the flower.

Clements & Jones treated subsp. *capricornicum* as a synonym of subsp. *curvicaule* (as *D. curvicaule*).

It would seem they failed to compare the photographs of it that accompany the original description. Whilst the similarity exists, they differ in sepal shape, flowering season is entirely different and their habitats are separated by dry plains.

However specimens of subsp. *curvicaule* from Cape Hillsborough have somewhat tapered sepals like the southern subspecies. This again shows similarity of some specimens to other subspecies which is why they cannot be considered to be specifically distinct.

D. speciosum subsp. *curvicaule* has two different growth forms. Generally clones from the Eungella Range, Mt. Jukes, Tinaroo Dam, and near Ingham, etc have pseudobulbs thickest at the base tapering slightly to a narrower apex.

Those from Mt. Lewis, eastern Mt. Windsor Tableland, near Innisfail and

Mt. Amos, etc have pseudobulbs with a bulbous base tapering immediately to a narrow neck, broadening near the middle, then gradually tapering again to a slightly narrower apex. The pseudobulbs are somewhat flattened.

This form would seem to be the Type form as Bailey's original description begins with "stems curved, some almost into a half-circle, compressed; 9-12 inches long (22-30 cm), the broad diameter often obtaining 1½ inches (3.8 cm)".

Clements & Jones appear to include this flattened stemmed form in *D. speciosum* subsp. *pedunculatum* (as *D. pedunculatum*).

We consider that though the stem habit of the two differ, the flowers of both are generally the same, differing mainly in size. Both are variable so are best treated within the one subspecies.

The most spectacular forms of subsp. *curvicaule* come from the Eungella Range west of Mackay. The best of these have large, well shaped, deep cream flowers with very heavy texture. Some fine clones are now in cultivation, and selfings of these will ensure their popularity. We have also seen a clone with deep purple stri-

Top right: *D. speciosum* subsp. *pedunculatum*. Type plant – *Photo: S. Clemesha.* Below right: Type specimens of *D. kestevenii* var. *coloratum* (left) and *D. kestevenii*. Note similarity – *Photo: D. Banks.*

ations on all segments.

Dendrobium speciosum subsp. *curvicaule* is distributed from the Dipperu National Park (south-west of Sarina) northwards along the coast and ranges to Mt. Amos, south of Cooktown. It also occurs on Hinchinbrook Island. Along its range it occurs both as an epiphyte and lithophyte.

D. speciosum Sm. subsp. _pedunculatum_ (S.C. Clemesha) D.P. Banks et S.C. Clemesha. Comb.nov.et stat.nov.

Basionym: *D. speciosum* Sm. var. *pedunculatum* (S.C. Clemesha Orchadian, 6(11): 261-262 (1981) Type: cult. Coffs Harbour, 26 Aug, 1980 S. Clemesha ex Bones Knob via Atherton, B. Gray (Holo Bri!) (Iso NSW!).

Synonym: *D. pedunculatum* (S.C. Clemesha) D. Jones et M. Clements Cat. Austr. Orch. 58 (1989)

Jones and Clements state the Holotype is in NSW and the Isotype is in the Queensland Herbarium at Brisbane. That is not so. It is the other way around.

D. speciosum subsp. *pedunculatum* differs from its closest relative, *D. speciosum* subsp. *curvicaule* in its dwarf habit, purple anthocyanins in developing growths and inflorescences and long peduncle.

The peduncle length is very variable. In the Type plant it is twice the length of the rhachis and all the flowers are crowded at the apex. In a clone from the Herberton Range the peduncle is the same length as the rhachis and flowers are more spaced.

This subspecies is generally more reluctant to flower off older pseudobulbs than its relatives. One spike per mature growth is the norm, two are sometimes produced on robust specimens.

In some localities, such as Mt. Lewis, subsp. *pedunculatum* and subsp. *curvicaule* both are found and intermediates are known.

Flowers of some clones of subsp. *pedunculatum* can be very difficult to distinguish from subsp. *curvicaule* if both are picked from the plants and mixed together. Thus clones exist which are difficult to segregate into their respective subspecies.

We have observed and cultivated a number of clones of subsp. *curvicaule* which flower on stems no taller than mature plants of subsp. *pedunculatum*. This has led to small growing plants of subsp. *curvicaule* being confused with subsp. *pedunculatum*.

This attractive lithophytic subspecies is endemic to north-eastern Queensland, growing on the western slopes of the Evelyn, Atherton and Windsor Tablelands.

Above: Flowering piece of original plant of *D. kestevenii* var. *coloratum* (now *D.* x *delicatum*) – *Photo: D. Banks.*

D. kestevenii Rupp.var. *coloratum* Rupp.

Clements on page 55 of his Catalogue of Australian Orchidaceae (1989) states: "Appears to be closer to *D. kingianum* than *D. speciosum* and possibly originates from a backcross of *D.* X *kestevenii* to *D. kingianum.*"

Ted Gregory has an attractive and distinctive plant he calls *D. kestevenii* var. *coloratum* that looks like a backcross. It does not match the Type specimen of *D. kestevenii* var. *coloratum*. As the photograph shows this differs little from Type of *D. kestevenii*.

The present authors consider *D. kestevenii* and *D. kestevenii* var. *coloratum*, which we both have in cultivation, to be synonymous with *D.* X *delicatum*.

CULTIVATION

All of the six subspecies of *Dendrobium speciosum* are easily cultivated as long as their basic requirements are met. Larger specimens can be attached to suitable garden trees which do not shed their bark or incorporated in a rockery. As our plants are grown in containers, we will focus our attention on this style of culture.

1) **Potting mix.**

It is essential that this allows for free drainage whilst still retaining some moisture. A combination of medium/large pine bark and river gravel is a popular mix that gives good results. Chunks of foam can be added to larger pots to reduce the overall weight.

2) **Pots**

Squat black plastic pots are preferred up to 165mm pot size. After

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which, squat terracotta pots and dishes are used. You may have to add a few more drainage holes as 'wet feet' will lead to rot problems. Smaller terracotta pots and saucers can be used for dwarf plants from drier climates such as subsp. *pedunculatum,* subsp. *capricornicum* and the 'granite belt' form of subsp. *hillii.*

3) **Housing**

We grow our plants on benches one metre off the ground in a bushhouse under 30% shadecloth. Seedlings will grow and mature faster under 70% shade. For optimum flowering it is imperative that the plants receive light for most of the day without obstructions such as buildings and dense trees. Fresh air circulation is a must.

4) **Watering**

For plants grown in a bushhouse, supplementary watering is appreciated by the plants during dry spells. Copious water and half strength organic fertilizer can be applied during active growth, usually after flowering.

5) **Repotting**

Seedlings can be potted-on throughout the year except mid-winter. Active root growth appears to recommence after the spring equinox. Mature plants are best repotted and/or divided after flowering, once they have outgrown their pots or disintegration of the potting mix has occured.

6) **Propagation**

Mature plants can be divided into pieces of no less than four pseudobulbs. Leafless backbulbs (with all roots cut back to 1cm) will strike readily if placed upright on moist sphagnum moss. Even single bulbs will commonly shoot from dormant or blind eyes. This is beneficial when propagating rare or selected clones. Plants raised from seed can take up to 10 years to reach maturity. If the young seedlings suffer no setbacks this can be reduced with good culture.

LINE BREEDING AND CONSERVATION

We have been involved with line breeding of *Dendrobium speciosum* and other plant species for over a decade, in an effort to produce superior clones and help reduce the strain on the ever decreasing wild populations.

Being such an attractive and conspicuous plant, many accessible clumps have been removed — some unfortunately from national parks.

It is important to not only concentrate on proliferating horticulturally attractive clones from known localities, but to also focus our attention on forms with restricted and threatened populations, eg; the coastal form of subsp. *capricornicum.*

All growers should try to keep their plants, and localities, correctly labelled and documented. Thereby if the species becomes extinct from that locality, seedlings descended from an original inhabitant may be reintroduced into the wild.

CONCLUSION

The present authors feel the Clements & Jones treatment of *D. speciosum* will cause total confusion if followed.

It can be seen that their research into this orchid has not been thorough enough and their attempt to replace long established names with unnecessary new ones is undesirable.

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ACKNOWLEDGEMENTS

A major review such as this cannot be undertaken without the efforts of many individuals and organisations.

We wish to thank the following institutions for their valuable assistance with advice and copies of historical material;

The Director and Staff of the Queensland Herbarium,

The Director and Staff of the NSW National Herbarium,

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We would also like to express particular thanks to the following people for providing living specimens and/or information which assisted our study of *Dendrobium speciosum* over the past 15 years;

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D.P. Banks
183 Windsor Road
Northmead NSW 2152

S. C. Clemesha
Lot 6, Skinner Close
Avocado Heights
Woolgoolga NSW 2456

Cycnoches loddigesii

by Barney Greer

A nice flowering of *Cycnoches loddigesii* was benched at the S.P.E.C.I.E.S. NSW. May meeting and Mark Webb photographed it for the A.O.R.

The somewhat spooky-looking, green-to-maroon *C. loddigesii* is less widely known than the green-white-black *C. ventricosum* but *C. loddigesii* is the species on which the genus was founded. It was discovered by John Henry Lance in Surinam and described by Lindley in 1832. Its range extends from Venezuela to Colombia to Brazil. It is one of the "Swan's Neck" orchids, so called for obvious reasons. The name, indeed, comes from the Greek Kyknos (swan) and anchen (neck). The photographed flowering, about ten flowers to the spike, filled the glasshouse with overpowering vanilla-sweet scent.

An interesting feature of *C. loddigesii* is that it produces male flowers, female flowers and perfect flowers, these occurring sometimes separated and sometimes together on one inflorescence. To confuse matters, all three forms look very much alike except to a bee or a botanist.

Even the botanist can get it wrong. Lindley originally thought that the (scentless) female flower of *C. loddigesii* was a separate species and called it *C. cucullata.*

The photographed inflorescence happened to be entirely of perfect flowers and now carries three seed pods to prove it.

I can't describe in botanical terms the spring-loaded trigger action by which the pollen is catapulted on to the bee. I can report that (unlike the *Catasetum* action which fires its pollen like a gun), with *C. loddigesii* one strokes the anther cap gently with the fingertip and it does a sudden U-turn and slaps the gluey pollen mass onto your finger nail!

Cycnoches flowers are big, flamboyantly shaped, long-lasting. Cycnoches plants are showy, with big, stout, deciduous bulbs. They need heat in Winter. They need plenty of light and air movement AND importantly, they need a dry period in Winter until the roots of the new growths are well on their way. By the way, according to Hawkes, the pronunciation of Cycnoches is SIK-noe-keez. ■

Cycnoches loddigesii – Photo: Mark Webb.

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Microwave Media Sterilization

by R. Smythe, M.Sc.

In the home the most common methods for sterilizing media are:—
1. pressure cooker
2. oven
3. microwave.

There are other methods possible such as peroxide sterilization or millipore filtration but these are generally not within the technical expertise of the home laboratory worker. All the home methods suffer with one problem and that is, immediate post sterilization contamination. This is a direct consequence of the fact that heating is involved and so on cooling contaminated air can be sucked in so fast that infection can get through the breather and under the lids. Domestic devices do not have bacteriological filters on the air inlets. Peroxide sterilization using an enzyme to destroy excess peroxide, millipore filtration and γ-ray sterilization available to the professionals do not suffer with this problem.

Microwave sterilization is my personal choice for the following reasons:—
1. It is fast.
2. It sterilized a lot of flasks (up to 40) in one hit.
3. Does not need attention.
4. Process can be repeated many times without destroying the agar.
5. It is more gentle on additives like vitamin supplements.
6. Using plastic wares the whole flask unit including the lid and breather can be sterilized.
7. Readily accessible, that is lids can be tightened, with the help of gloves, as soon as heating source is turned off.

Spores are found both with fungi and with bacteria. They resist being killed by boiling at normal temperature. To understand the difference between the vegetative organism which is destroyed and the spores which are resistant, the best example I can think of is a mushroom. If you take a mushroom and tap it on a sheet of white paper you will see the black spore imprint on the paper. The mushroom as you see it is the vegetative part and is destroyed on cooking. The spores of some fungi and bacteria resist cooking and in fact heating often starts the germination process and hence formation of a new vegetative plant. All this means is that the pressure cooker, because of its elevated temperature, will usually sterilize the first time but with the other two methods it is sometimes necessary to let the spores germinate then resterilize a second time after twenty four hours. In winter it is advisable to wait 3 days before second sterilization.

Living in the 'dry tropics' I have been able to sterilize media in the dry months with a, once only, eight minutes of boiling whereas in the summer months when fungus grows on everything I have increased boiling time to approximate 2 x 15 minutes.

Following are some of the problems encountered and how they have been overcome.

Metal lids not sterilizing — presterilize them in an oven at 130°C for 1 hour.

Metal lids arcing — Space them and cover them with plastic. There is a possibility with some domestic devices that the magnetron could be ruined by reflected microwaves if too much metal is used.

Usually these machines would have a warning about either use of metal or warnings not to use the machine when empty. Check with the supplier.

Surface infection — This can result immediately after sterilization and might be avoided by several short bursts of microwaves after the flasks have cooled. Do not use enough to melt agar. I use a couple of 5 min burst for a litre of media.

Expanding and softening lids — The large low density polyethylene lids are a real problem as they soften at 95°C and expand so the lid won't seal while hot. After they have been used about 3 times they lose enough plasticiser to just seal. I would suggest you avoid very wide necked bottles with soft plastic lids.

Delayed germination of spores — This problem is obvious in media, all methods after a week or more, when spheres of contamination occur in the bulk of the media. Generally this has been caused by a very slow growing bacteria, possibly a nodule bacteria. Quite often these, like an orange bacteria which sometimes occurs on the surface, survive in harmony with the plants and do not have to be removed. It is wise therefore to leave the flasks for a week or two, then checking before using. If this delayed spore germination has occurred then a third sterilization is required. This problem occurs up here in the tropics during the wet season and I believe it is picked up from decay in the damp coconuts used. I have found that drilling through the side rather than through the damp end where the eyes are, produces a cleaner less contaminated milk. Where you do not have access to whole nuts but only the kernel the problem may not present itself.

Now I will give a quick run-down on a typical sterilization programme as used by myself. As microwave ovens have different wattage and capacity, each user will have to research his power and time conditions for the particular machine. My machine is an old Sharp 600W without turntable. This type holds many more flasks than the rotating type. It gains in quantity but does suffer from a couple of cold spots.

Plastic flasks are the way to go with this method. Polycarbonate flasks with polypropylene lids are the easiest to handle though it is possible for very experienced workers to handle polystyrene. I do not recommend that you try the latter unless shown as they will melt and can shatter.

The media is made up as per formulation with, in my case, the addition of 350 ml of extra water per litre. My tests have found that this is the amount boiled off during sterilization.

The flasks are presterilized for 10 minutes at full power. It is important to put a small quantity of water in each flask as some microwaves have components which will overheat and damage the machine if used virtually empty. Dispense the 1.35 litres of media into the number of flasks necessary to just fill the machine with

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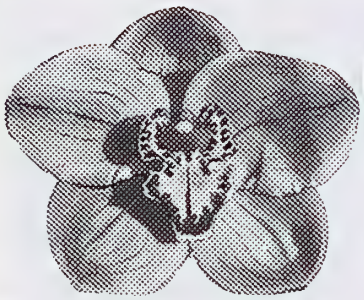

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one layer of flasks. I have used two layers with a more powerful machine. On full power for 30 minutes my machine gives a nice steady boiling for about 15 minutes. With the containers, having plastic lids, the lids can be put on fairly firmly as they expand on heating. **It is extremely important if you are using unvented metal lids to have them loose if you want your machine to stay in one piece.** On completion of heating and with the use of a glove I screw the lid on tightly and transfer the flasks to a clean box to cool. The cool air box is simply a broccoli box (foam box with a lid) which has a section cut out and blotting paper covering the hole. Bleach is used to keep the inside fairly sterile. The sterilization is repeated next day. The cooled flasks (those having vents) are then placed in a box with drying agent during the wet season to dry out the breather. If this is not done fungus can grow through the filter and drop onto the media. Breathers can be treated with chemicals and non wetting agents to minimize this problem. If the chemical is toxic to plants (e.g. mercuric chloride) take care that it is only applied to the top of the breather.

Some final advice — Do not have lids on too tightly when using a microwave. Cover and space metal lids and presterilize lids. If you do not use breathers only open lids in a sterile environment such as a glove box or sterile flow cabinet. When lids are held too tightly by vacuum, warm until agar just melts then try again as above. If the cotton plugs are too tight they will pop out and if they are too loose the bugs will get in.

Non wetting agents can be found in the supermarket. Tent sealant has both silicon and antifungicides. Scotchguard puts on a fluorinated plastic coating which is okay for the cotton wool but seals off paper filters. Blotting paper breathers are easy to make. If you glue them on with a silastic glue watch out for ants and such like as they feed on the acetic acid (vinegar) released. Bacteria also will feed off this so it should be washed out before use.

If you find your fresh media develops a slime over it or a white ring around the glass you have got immediate post sterilization contamination. It is almost invariably a bacteria. I suggest that you throw these out and improve your breather, lid seal or your cooling down procedure. Sometimes the bugs fall on the inner walls and it takes time for them to percolate down with the condensate. This is also a problem if the metal lids are not sterilized.

Fungus usually occurs later and if it occurs under the breather you know the source of the problem. If it is near the walls it is probably the lid seal. If found early enough fungus can be cut out. Be generous with the agar removed when using your sterile spoon. If the plants are already introduced I would remove the fungus, wash the area with a chlorine solution, then with an iodine solution to remove the more damaging chlorine. You will need a sterile eye dropper (pasteur pipette) to do this properly. If you use metal lids only use new ones and ones that do not distort on compression. I have seen rust lift a lid enough for sugar ants to access the media.

Give microwave sterilization a go but do not expect to get it right on your first attempt. Makes notes of times, power levels and volume used. As I have developed this method to contend with the problems of a spore filled tropical environment, it should work anywhere. With a little experimentation you should be able to simplify the method to suit your conditions.

Correspondence:
c/- Department of Chemistry
and Biochemistry
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Prestigious award to Frank Slattery

At the 13th World Orchid Conference in New Zealand Frank was surprised when he was called up to the stage and presented with a Gold Medal by Dame Kiri Te Kanawa.

Frank received the medal for his dedication and outstanding lifetime service to Orchids in both New Zealand and Australia.

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Frank was invited to New Zealand by the New Zealand Orchid Society in 1959, to act as Chairman of a newly formed Judging Panel, this was the first competitive show held in New Zealand. The show was held in a department store in Auckland. Frank was President of the Australian Orchid Council at this time and the show was judged by the Australian Orchid Council Standards and five awards were granted using guide lines as then set out by the Australian Orchid Council.

The opening of the 13th World Orchid Conference was held in the Auditorium in the presence of the Governor General and the Lord Mayor and other dignities and was a replica of a mini games opening, over 2000 people were present from over 40 different nations round the World. Medals were presented to several prominent New Zealand orchid personalities including the Bonham family who were responsible for the organisation of the conference. Frank felt very humble and proud to be selected for this great honour.

Dame Kiri te Kanawa presenting Frank Slattery with a gold medal.

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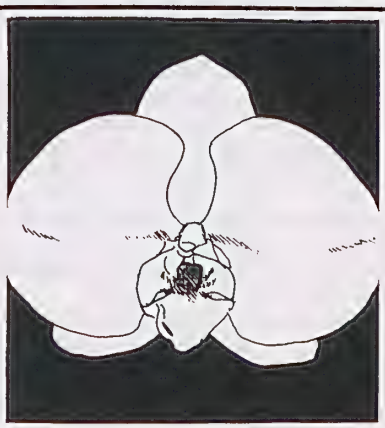

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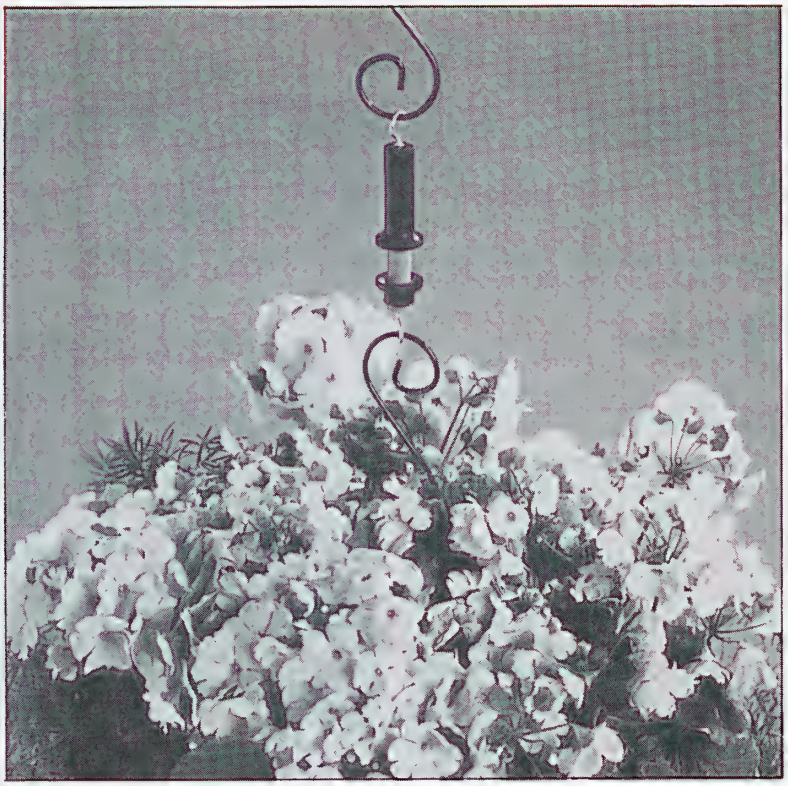

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New Orchid Hybrids

JULY 1990 REGISTRATIONS
Supplied by The Royal Horticultural Society as International Registration Authority for Orchid Hybrids

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NAME	PARENTAGE	REGISTERED BY
ASOCENDA		
" Maui Purple	*Ascda.* Ooi Boon Huat x *Ascda.* Peggy Foo	Trop. O. Farm (R. Fukumura)
" Penguin	*V. teres* x *Ascda.* Laksi	T. Orch
ASPASIUM		
" Uschi	*Asp. principissa* x *Onc. macranthum*	H. Rohri
BRASSOLAELIOCATTLEYA		
" Aloha Murray Spencer	*Blc.* Mem. Crispin Rosales x *Lc.* Ishtar	Aloha Orch. (M. Spencer)'
" Aloha Spirit	*Lc.* Mildred Rives x *Bc.* Donna Kimura	Aloha Orch. (R. Takafuji)
" Brown Hoyt	*C.* Jerry Hoyt x *Blc.* Mem. Helen Brown	K. Matsuura
" Gold Ho Hsing	*Blc.* Yellow Ball x *Blc.* Termthong	Chen Chin-Feng
" Hawaiian Daymaker	*Blc.* Chancemaker x *L. dayana*	Kodama's
" Knee Baby	*Blc.* Oconee x *L. praestans*	Carter & Holmes
" Light of Formosa	*Lc.* Amber Glow x *Blc.* Sunset Bay	Fan High-Su
" Linda Fisk	*Blc.* Golden Gifford x *Blc.* Helen Pastushin	Hausermann's (Beall's)
" Malfinney	*Lc.* Irene Finney x *Blc.* Malworth	K. Matsuura
" Penny Helen	*C.* Penny Kuroda x *Blc.* Mem. Helen Brown	K. Matsuura
" Shyu-Chang Dah	*Blc.* Golden Slippers x *Blc.* Tassie Barbaro	Chang Chau-Yung
" Sweet Anniversary	*Blc.* Pamela Farrell x *Blc.* Mem. Crispin Rosales.	Dogashima's
**CALOARETHUSA (Clts.)*		
" Poet's Song	‡*Cpg. tuberosus* † x ‡ *Aret. bulbosa*†	R. Yannetti
CATTLEYA		
" Hawaiian Searider	*intermedia* x Princess Bells	Kodama's
CATTLEYTONIA		
" Aquarius	*C.* Penny Kuroda x *Bro. sanguinea*	M. Werther
COLMANARA		
" Margaret Oda	*Odtna.* Dan Inouye x *Onc. leucochilum*	H. Rohri (Philip Ho)
CYMBIDIUM		
" Augres	Dingwall x Pink Ice	E. Young, O.F.
" Beaumont	Pink Ice x Portelet Bay	E. Young, O.F.
" Highland Advent	Goldrun x Christmas Angel	McBeans
" Pieter Ege	Rusper x Voodoo	D. G. Guzikowski
" Tracy's Dragon	Pendragon x *tracyanum*	P. Lawson
" Vicard Point	Sutherland x Thurso	E. Young, O.F.
DORITAENOPSIS		
" Corinth	*Phal.* Zuma Red Eye x *Dtps.* Alice Loeb	Zuma Canyon's
" Ganteng	*Phal.* Orchid World x *Dtps.* Orglade's Puff	Zuma Canyon's
" Nuebay	*Phal.* Quintana Roo Dunne x *Dtps.* Alice Loeb	Zuma Canyon's (Loeb Jr.)
" Ronda	*Phal.* Hamptons Pride x *Dtps.* Zuma White Puff	Zuma Canyon's
" Spuyten Duyvil	*Phal.* Diana x *Dtps.* Alice Loeb	Zuma Canyon's (Loeb Jr.)
" Stone Happyday	*Dtps.* Happy Valentine x *Phal.* Zuma Dancer	Chen Gee-En
" Ton Jy Jaguar	*Dtps.* Ta Bei Chou x *Phal.* Frisson	Chou Chien Chuan
" Ton Jy Koolena	*Phal.* Art Hall x *Dtps.* Ta Bei Chou	Chou Chien Chuan
DENDROBIUM		
" Daflo	Walter Oumae x Tomie Drake	Kanjana's
" Elva Ann	Sister Ann-Maree x Autumn Show	R. Nicholls
" John Donald	Childers x Bundaberg Beauty	R. McVeigh
" Jock's Candy	Candy Stripe x Jock's Pride	R. McVeigh

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DENDROBIUM (cont.)		
" Walnut Valley	Gilbert Kobatake x Liholiho	M. Thompson (Richella's)
" Maui Twist	Alice Cummins x Blue Ribbon	Trop. O. Farm (R. Fukumura)
" Pale King	Field King x Jaq-Hawaii	R. McVeigh
" Royal Lady	Bodhi Ngern x Rungroj	R. McVeigh
EPICATTLEYA		
" Berta	*Epi. olivaceum* x *C. forbesii*	Dr L. Schott
EPILAELIA		
" Little Nuggets	*Epi.* Westconnett Gold x *Epi. tampense*	Carter & Holmes
LAELIOCATTLEYA		
" Good Feeling	*Lc.* Drumbeat x *C.* Old Whitey	S. Kaji
" Happy Song	*C.* Myrtle x *Lc.* Barbara Siever	S. Kaji
" Memoria Robert Strait	*C. walkerana* x *Lc.* Wayndora	R. Strait Jr. (O/U)
" Michele Hughes	*C.* Princess Bells x *Lc.* Okinawa	J. W. Hughes
" Orglade's Cherry Tart	*Lc.* Remo Prada x *C.* Cherry Chip	Jones & Scully
" Orglade's Surprise	*Lc.* Orglade's Cherry Ripple x *Lc.* Orglade's Glow	Jones & Scully
" Princess Happy	*Lc.* Puppy Love x *C.* Princess Bells	S. Kaji
LYCASTE		
" Island of Snow	Shimayuki x Koolena	J. Shimayuki
MACLELLANRA		
" Hansruedi Isler	*Odcdm.* Tiger Butter x *Mcln.* Pagan Lovesong	J. Isler
MASDEVALLIA		
" Alicia	*glandulosa* x *guttulate*	E. Dreise
" Annemarie	*mejiana* x Kimballiana	E. Dreise
MOKARA		
" Nauche Eric	*Mkra.* Sayan x *V.* Thailand Gold	N. Eric (T. Orch.)
" Waikiki Gold	*V. sanderana x Mkra.* Khaw Phaik Suan	R. Yahiro
ODONTIODA		
" Blue Chanson	*Oda.* Echanson x *Odm.* Blue Poole	H. Rohri
ODONTOCIDIUM		
" Isler's Goldregen	*Odcdm.* Purbeck Gold x *Odcdm.* Tiger Butter	J. Isler
ODONTOGLOSSUM		
" Marlis Isler	Bic-ross x *maculatum*	J. Isler
" Stern von Russikon	*uro-skinneri* x *hastilabium*	J. Isler
ONCIDIUM		
" Ladda Sunset	Nathakhun x *lanceanum*	T. Orch.
" Memoria Henry Berol	Sultane x *onustum*	R. F. Orchids
" Newberry Dancer	Muñequita x Golden Sunset	Carter & Holmes
" Shannon Elizabeth	Sniffen x Golden Sunset	Orch. & Ferns
" Tamra Raven	Vororat Belle x Springfield	Mo. Bot. Gdn. (Jones & Scully)
PAPHIOPEDILUM		
" Blitz	Spotter x *bellatulum*	Orchs. Royale
" Booth's Saint-Stage	Iantha Stage x Saint Swithin	F. Booth
" City Lights	Western World x Hell's Fire	Orchs. Royale (Jack Wilson)*
" Ernest Hetherington	Winston Churchill x Tree of Beauty	M. Kimura
" Hatton	Botan x F.C. Puddle	F. Haynes
" Hiroko	Santa Margarita x Redezelle	K. Chiba
" Honey Doll	Hunters Point x Capital World	H. Doll
" Hot Pants	Vintner's Treasure x Paeony	H. Doll
" Kedleston	Winston Churchill x Royal Vandyke	F. Haynes
" Kose	Redezelle x Narikatsu Ikeda	K. Chiba
" Lovely Tree	Amanda x Tree of Beauty	M. Kimura
" Magic Glow	Magic Mood x Spotglen	Orchs. Royale
" Marilyn Monroe	Gold Nugget x Chardmoore	H. Doll
" McDoll	Winston Churchill x Capital World	H. Doll
" Medallo	Hunters Point & Memoria Jack Dixon	H. Doll

NAME	PARENTAGE	REGISTERED BY
PAPHIOPEDILUM (cont.)		
" Nagoja Gold	Medallo x Hellas	H. Doll
" Night Sky	Royal Anthem x Treevill Winston	Orchs. Royale
" Primadolla	Dixon Gold x Memoria John Dominy	H. Doll
" Sussex Pearl	Deperie x *bellatulum*	McBeans
" Tree of Dragon	Burpham x Amanda	M. Kimura
" Tree of Heisei	Anena x Tree of Galaxy	M. Kimura
" Winston Doll	Winston Churchill x Memoria Jack Dixon	H. Doll
PHALANEOPSIS		
" Chiffon Delight	Carolina Heather x Nominoë	Carter & Holmes (Lenette's)
" Coccinelle	Liu Tuen-shen x Mouchette	Garris & Sidran (J. Ewing's)
" Cosmo-Bruce	Bruce Shaffer x Winter Maiden	Kokusai's
" Cosmo-Winter	Juanita x Winter Maiden	Kokusai's
" Golden Inspiration	Golden Emperor x Deventeriana	G. Stall
" Hawaiian Love	Hausermann's Candy x Frisson	Kodama's
" Hawaiian Reunion	Cathrine Pillsbury x *amabilis*	Kodama's
" Hawaiian Snowfall	Joseph Hampton x Opaline	G. Fukumura
" Ho's Fancy Leopard	Elise de Valec x Coquinette	Ho Tin-Fan
" Ho's Queen Elise	Paifang's Queen x Elise de Valec	Ho Tin-Fan
" How Yee Peng	Teoh Tee Teong x Ambonosa	David Lim
" Jeenellyn's Ufo	Art Hall x Silver Ice	E. Heintz (Carter & Holmes)
" Jody Garris	Be Glad x Marquise	Garris & Sidran (R. Westcott Inc.)
" Magic Interlude	Grand Cascade x Mancini	Carter & Holmes
" Marquesas	*venosa* x Zuma Red Eye	Zuma Canyon's
" Maui Queen	Michelle Peltier x Polynesian Queen	Trop. O. Farm (R. Fukmura)
" Memoria Anne Fajen	Kathleen Al x *equestris*	Fajen's
" Neon Stripes	Kathleen Ai x Carmela's Stripe	G. & D. Kobayashi
" Newberry Glacier	Katherine x Moon Snow	Carter & Holmes
" Pacific Sun	Golden Amboin x Frank Gottburg	Orch. Zone (H. Hager)
" Poco's Illusion	Miami Sunrise x Pin Wheel	Zuma Canyon's (Loeb Jr.)
" Poco's Petite	Zuma Chorus x Scaramouche	Zuma Canyon's (Loeb Jr.)
" Poco's Valentine	Spring Silk x Rosy Flora	Zuma Canyon's (Loeb Jr.)
" Romance Miki	Romance x Miki Saito	Dogashima's
" Sakuragai	Zauberrose x *schillerana*	K. Matsuura
" Samaculate	Snow Lady x Frisson	S. & N. Freeman
" Sleeping Giant	Alice Sharpe x Hilo Lip	G. & D. Kobayashi
" Snow Line	Katherine x Winter Reverie	Carter & Holmes
" Stone Face	Brother Stripes x Dame de Coeur	Chen Gee-En
" Stone Fox	Chiayi Spot x Fortune Girl	Chen Gee-En
" Stone House	Chiayi Spot x Hualien Pride	Chen Gee-En
" Ton Jy Gold	Golden Spice x Mount Kaala	Chou Chien Chuan
" Ton Jy Kinsei	*gigantea* x Fifi	Chou Chien Chuan
" Warm Embrace	Southern Heather x Nominoë	Carter & Holmes
" Yunlin	Fun Time x Mount Kaala	Chou Chien Chuan
POTINARA		
" Pamela Cerami	*Lc.* Royal Emperor x *Pot.* Naokazu	Jones & Scully
RODRIGUEZIA		
" Gautreaux	*secunda* x *candida*	Dr L. Schott
SOPHROCATTLEYA		
" Brevl Lynn	*Sc.* Carol Lynn x *Sc. brevipedunculata*	J. Woltmon
SOPHROLAELIA		
" Little Vista	*Sl.* Orpetii x *Sl.* Psyche	J. Woltmon
SOPHROLAELIOCATTLEYA		
" Aloha Psyche	*Lc.* Pink Favourite x *Sl.* Psyche	J. Woltmon
" Aloha Splash	*Sl.* Red Doll x *Sc.* Batemanniana	J. Woltman
" Baby Linda	*Slc.* Dixie Jewels x *Slc.* Linda Ann	J. Woltmon
" Cherokee Fire	*Lc.* Chit Chat x *Slc.* Anzac	Jones & Scully (O/U)
" China Jewel	*Slc.* Dixie Jewels x *Sl.* Psyche	J. Woltmon
" Dixie Rose	*Slc.* Dixie Jewels x *Soph. rosea*	J. Woltmon
" Happy Fresh	*Slc.* Madge Fordyce x *C.* Princess Bells	S. Kaji
" Jewel Top	*Slc.* Tangerine Jewel x *Lc.* Button Top	J. Woltmon
" Mini Doris	*Slc.* Dixie Jewels x *Sc.* Beaufort	J. Woltmon

NAME	PARENTAGE	REGISTERED BY
SOPHROLAELIOCATTLEYA (cont.)		
" Top Aussuan	*Slc.* Assuan x *Lc.* Button Top	J. Woltmon
" Tropical Gem	*Lc.* Chicanery x *Slc.* Tangerine Jewel	Trop. O. Farm (R. Fukumura)
**TETRACATTLEYA (Ttct.)*		
" Estela Marie	*Ttma. canaliculata* x *C. bowringiana*	Dr L. Schott
TRICHOPILIA		
" Sauve Margins	*suavis* x *marginata*	S. Golan
VANDA		
" Dona Isabel Bosch	Chavananand x Gordon Dillon	R. F. Orchids
" Joy Yahiro	*sanderana* x Fuchs Delight	R. Yahiro (R. Fukumura)
" Karulea	Kapiolea x *coerulea*	S. Oun-Anong
" Silvia Palmieri	Faye Bennett x Gordon Dillon	R. F. Orchids
VASCOSTYLIS		
" Golden Beauty	*Rhctm.* Ladda Gold x *Ascda.* Su-Fun Beauty	Impact Orch. (O/U)
WILSONARA		
" Durham Ingot	*Wils.* Sussex Gold x *Oda.* Ingmar	McBeans
YAMADARA		
" Green Envy	*Eplc.* Envy x *B. perrinii*	R. McVeigh

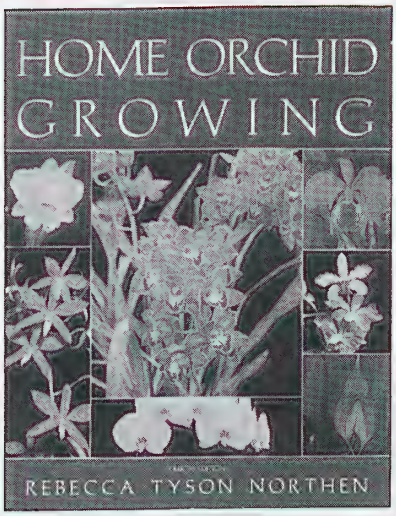
* New intergeneric names with abbreviations for the following combinations. The botanical authority follows each component genus:—
Caloarethusa = *Calopogon* R. Brown x *Arethusa* Linneaus
Tetracattleya = *Tetramicra* Lindley x *Cattleya* Lindley

‡ Natural genera new to registration with abbreviations:—
Arethusa (Aret.); Calopogon (Cpg.)

† Species new to registration:—
Arethusa bulbosa; Calopogon tuberosus.

CORRIGENDA — Orchid Review list of:—
June 1986, parent of *Phal.* Burgundy Bubbles: Eye Catcher should read Eye-Catcher.
February 1987, parent of *Phal.* Nell Jennings: Mem. Carla Peterson should read Mem. Carla Petersen.
March 1989, parent of *Blc.* Roman Treasure; *Blc.* Buttercup should be in roman typeface.
March 1989, parent of *Blc.* Ruby Lips: *Blc.* Mem. Helen Brown should be in roman typeface.
March 1989, *Cymbidium:* Artful Doger should read Artful Dodger.
March 1989, parent of *Phal.* East Maui Princess: Haruku Fukumura should read Haruko Fukumura.
April 1989, parent of *Den.* Hawaiian Baby: Ahulani Hinajose should read Ahulani Hinojosa.
April 1989, parent of *Den.* Hawaiian Fireball: Ahulani Hinajose should read Ahulani Hinojosa.
June 1989, registrant of *Den.* Red Butterfly: Ben Lian should read Bee Lian.
July 1989, parent of *Disa* Bernard Podlashuk: Watson should read Watsonii.
July 1989, parent of *Odcdm.* Charade Yellow: *Odcdm.* Chicken Itza should read *Odcdm.* Chichen Itza.
July 1989, Corrigendum; June 1989 should read May 1989.
August 1989, parent of *Phal.* Hawaiian Believers: Lippergruss should read Lippegruss.
September 1989, Corrigenda item Aug. 1988: correction should be reversed.
November 1989, parent of *Dtps.* Killesberg: *Phal.* As de Pique should read *Phal.* As De Pique.
December 1989, parent of *Phal.* Pink Promenade: Miko Saito should read Miki Saito.
December 1989, parent of *Rhv.* Kauai Blushing Bride: *Rhy.* retusa should read *Rhy. retusa.*
January 1990, parent of *Den.* Pandala: Numkumbil should read Nunkumbil.
February 1990, parent of *Phal.* Via Malibu: Shannon Donohoe should read Shannon Donahoe.
February 1990, Corrigenda item May 1989: correct parent of *Onc.* Zippy should read *blanchetii.*

Reprinted from *The Orchid Review,* October, 1990.



Home Orchid Growing
Rebecca Tyson Northern
Fouth Edition Revised
Publisher Prentice Hall 1990
376pp, Hard Cover: RPP $59.95

This book is written in the same style as the third edition and has four chapters dealing with the Genus *Cattleya.*

The many different subtribes are updated and described in detail and all chapters are beautifully illustrated in colour and black and white.

This is an ideal book for beginners and for the keen Orchid grower who wants to update his or her collection. It's also a very good reference book.

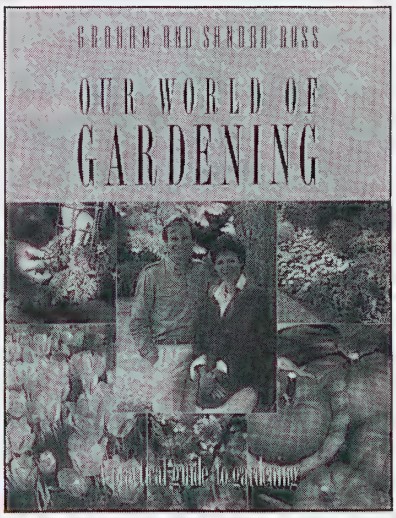
Our World of Gardening
Graham and Sandra Ross
Publisher Simon and Schuster
256pp, Hard cover: RRP $39.95

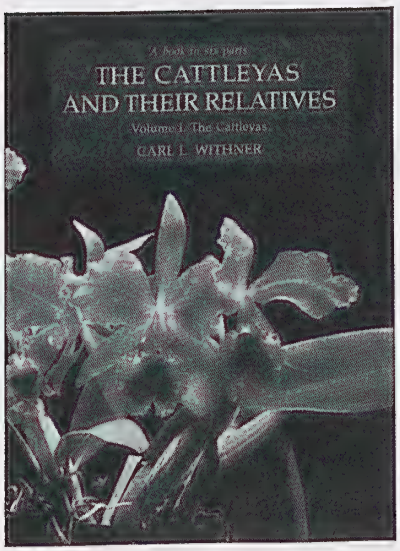
Although this is a book on general gardening, it contains many hints that can be adapted to all types of plants.

Each chapter is beautifully illustrated in colour and to avoid any confusion, the common accepted name and the scientific name are used.

A small section of the book is devoted to Orchid growing and describes in simple terms the main genera in cultivation.

A book well worth having as a reference for all types of gardening, written for Australian conditions.





The Cattleyas and their Relatives

Volume I The Cattleyas
Carl L. Withner
77 colour photographs
Publisher: Timber Press 1988
148pp Hard cover RRP $US29.95

This is the first in a six volume set. Fifty different species are covered in alphabetical order and there are taxonomic keys for exact identification of the species.

The author's treatment is interesting in the way that it discusses whom each species was named after, the originator of each specific name, where and when it was discovered and who first successfully cultivated it to flowering stage.

A short chapter on cultivation is followed by the main chapter on the species, which makes fascinating reading.

This book and the five volumes to follow are a must for the serious orchid grower and every orchid society library.

Volume II: *Laelia.* Volume III: *Schomburgkia,* monotypic and other small genera, Caribbean *Encyclia* and *Psychilis.* Volume IV: Mexican and Central America *Encyclia.* Volume V: *Encyclia* of Brazil and the Gurianos. Volume VI: Andean *Encyclia* and combined indices.

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The Herbert River Orchid and Allied Plant Society is hoping that offering Prize Money of $1000 will be enough incentive to encourage orchid growers to exhibit in the first International Cut Orchid Flower Championships.

The Championships will be conducted in conjunction with the 1991 TQOC Conference in Ingham on June 7, 8, 9 and 10.

It is pointed out that the closing date for this competition is 1st February 1991. (This is to allow the organising committee time to arrange the required space in conjunction with the other Conference commitments and also to notify various enthusiasts wishing to visit this section).

Two other important points are that should there not be a minimum number of 10 entries in each section then the two sections will be combined to make one with the prize money for that section being $500. Also it is important to note that all orchid flowers exhibited will become the property of the Herbert River Orchid Society and at the end of the Conference will be auctioned to cover the prize monies.

Full details and conditions of entry are as follows and if you are interested and there is no entry fee, it would be appreciated if you could let the TQOC Conference Committee P.O. Box 109, Ingham know as soon as possible.

INTERNATIONAL AND AUSTRALIAN CUT ORCHID FLOWER CHAMPIONSHIP

Held in the Shire Hall Ingham in conjunction with the TQOC Conference over the Queens Birthday weekend 7th, 8th, 9th and 10th June, 1991.
SECTIONS: The display will be in two sections:
International and Australian.
PRIZE MONIES: International — $500 and Trophy
Australian $500 and Trophy.
ELIGIBILITY: INTERNATIONAL: Any Club, Society or Individual.
AUSTRALIAN: Any Club, Society or Individual.
ENTRY FEE: There will be no entry fee but all cut orchid flowers will become the property of the Herbert River Orchid and Allied Plant Society at the end of Display, unless prior arrangements are made.
DISPLAY AREA: All displays are to be of cut Orchid Flowers only and each display will be on a bench top of equal size. 1500mmx750mm and each display will be enclosed on each side and across the back by a white backdrop 500mm high. Greenery may be used in display.
PLACEMENT: Displays are to be arranged by registrants but should displays be sent from non attending clubs, societies or individuals they will be put together by Floral Art and Orchid Society ladies. Specifications of displays may be supplied and these will be followed as closely as possible.

VALE
Francis Ellesmere Smith

Members of the Orchid fraternity in New South Wales have been saddened by the loss of our respected member and friend.

Ellis was one of those people always willing to help either an individual or a group of which he was a member. His services to the Orchid fraternity as a Judge, Hybridiser, Grower and Member, was demonstrated at the funeral service at Woronora Crematorium on Saturday, 30th June, by the large contingent who gathered to pay respects to a friend and gentleman.

To his wife, Jean and his family we express our deepest sympathy.

Bob Battye, President
Cymbidium Club of Australia

Medallions for Service to Orchid Fraternity

The Orchid Society of N.S.W. has recognised the services of members to the orchid fraternity with the allocation of Medallions to each member society.

Two of these medallions allocated to the Cymbidium Club of Australia were awarded to Bill Keats and Ellis Smith as founding members of the Club.

In 1979, having attended a society meeting, they conceived the idea of forming a Cymbidium Club with the aim of developing and growing Cymbidiums to a higher standard for the Commercial, Showbench and Amateur growers.

Whilst Ellis and Bill have been very active members of this club as committee and executive members they have also made time to participate with other societies in their activities.

Members of the Cymbidium Club join together in saying thank you for services rendered.

Sadly, Ellis passed away in June of this year.

Bob Battye,
President
Cymbidium Club
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Please ensure that all slides and photographs are clearly marked with the author's name and address.

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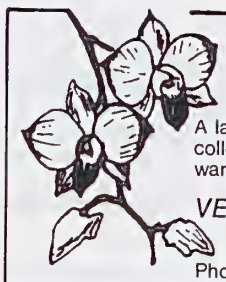

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So well researched and executed was the work, that it brought the expatriate Irishman accolades from some very distinguished quarters. The famous botanist, explorer and director of Kew Gardens, J.D. Hooker, considered it "a work which would be an honour to any country and to any Botanist". George Bentham, author of the famed Flora Australiensis (1863-78), wrote "Thanks to you the Australian Orchideae are now better known than those of any country out of Europe". Fitzgerald is remembered not only for naming Australian orchids but also by names bestowed in his honour.

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Honour Granted to Mr G. Hermon Slade

At the ANOS Conference Banquet held at Wollongong on 29th September 1990, Dr Phillip Cribb, on behalf of the Director of the Royal Botanic Gardens, Kew, presented Hermon Slade with an Honorary Research Associate in Orchid Science Certificate in recognition of his contribution towards orchids.

Only two other persons have been similarly honoured. They are GUNNAR SEIDENFADEN and CARLYLE LUER — both noted and eminent in the orchid world.

LETTERS

Dear Sir,

We would like to draw your readers' attention to the current situation regarding the collection and export of Papua New Guinean orchid species, thus preventing future misunderstandings and disappointment. There have been numerous recent instances of collectors visiting Papua New Guinea from abroad and attempting to export Papua New Guinean orchid species, sometimes in substantial quantities. Several of these exports have contravened the CITES regulations.

On 4th September 1990, the Papua New Guinea Government announced a total ban on the export of PNG orchid species. The Department of Environment and Conservation is now reviewing the situation with the intention of producing legislation that will allow fair and controlled export of reasonable quantities of non-endangered PNG orchids.

Papua New Guinea welcomes the many tourists who come each year to enjoy the sight of our beautiful orchids growing in the wild. But please don't expect to take them home with you.

T.H. O'Neill
President
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Paphiopedilum markianum or *P. tigrinum* Fowl

by R.D. Kramer

In late November 1989, Buddy Mark of Hong Kong informed me that a possible new species had been discovered. Photographs were submitted to me of both plant habit and flower structure. At once I thought of the lost *P. chiwuanum* since the new species so much resembled the members of the section Stictopetalum. Although I had no intention of naming it (since Dr J A Fowlie was already working on the plant), namely researching it in its native habitat, I felt it would be an honour for Buddy Mark to be cited as the introducer of the species to Botanical science. I placed this at the conclusion of the photo essay that I was producing for the Australian Orchid Review (Feb 1990). This would at least let the world know that a new species had been discovered.

As is usually the case with the introduction of a new species, everyone wants to be the first to get into print and inflate their own egos. Hurriedly sketchy and sometimes totally misleading information is processed and sent to the first magazine that will have them. Along the way they trip each other or at least try, before the finishing post. The naming and classification of *P. markianum* has been no exception.

The upper undulation of the petals is very noteworthy when trying to compare the Stictopetalums to the new species. Very few if any of the other Paphiopedilums have such a pronounced undulation. Here we can see the very same undulate petal margin between *P. hirsutissimum*, top and *P. markianum*, above.

Gone is the need for collective discussion, review and final analysis rather the "bull at the gate" attitude has each nation working against each other. Hurry, be the first in print regardless of how incorrect everything is. Why don't you all wake up to yourselves. Can't you see that the dedicated plant enthusiasts will shoot you down in flames and later either discredit your messup or totally rewrite your junk. Obviously history has been a very poor teacher. Early English collectors and so called taxonomists went through all the same phases and today many errors are still being revealed and amended.

The American Orchid Advocate was the first to have a crack at the

species. (June 1990). An attempt was made to classify the plant but I strongly feel the attempt was a dismal failure. The plant was named as *P. tigrinum,* however the weightlessness of botanical arguement and why it was not the lost *P. chiwuanum* and the sketchy habitat and collection site, indicated that another shuttle job was in the offing.

Dr J A Fowlie of the Orchid Digest, for whom I have a lot of time due to his commitment to realistic and accurate articles on the Paphiopedilums, actually undertook field studies into a habitat and collected enough scientific material to make the treatise plausable — well except for one area. The general public, who have been classed as botanical amateurs, by the almighty botanists, are not fools and if the former were at all honest to themselves, would have to admit that we have contributed much more information to them than they would like to admit. Don't feel threatened by funds for next years salary, the Government and private individuals are bound to cough up again, the people that supposedly know nothing.

Classification

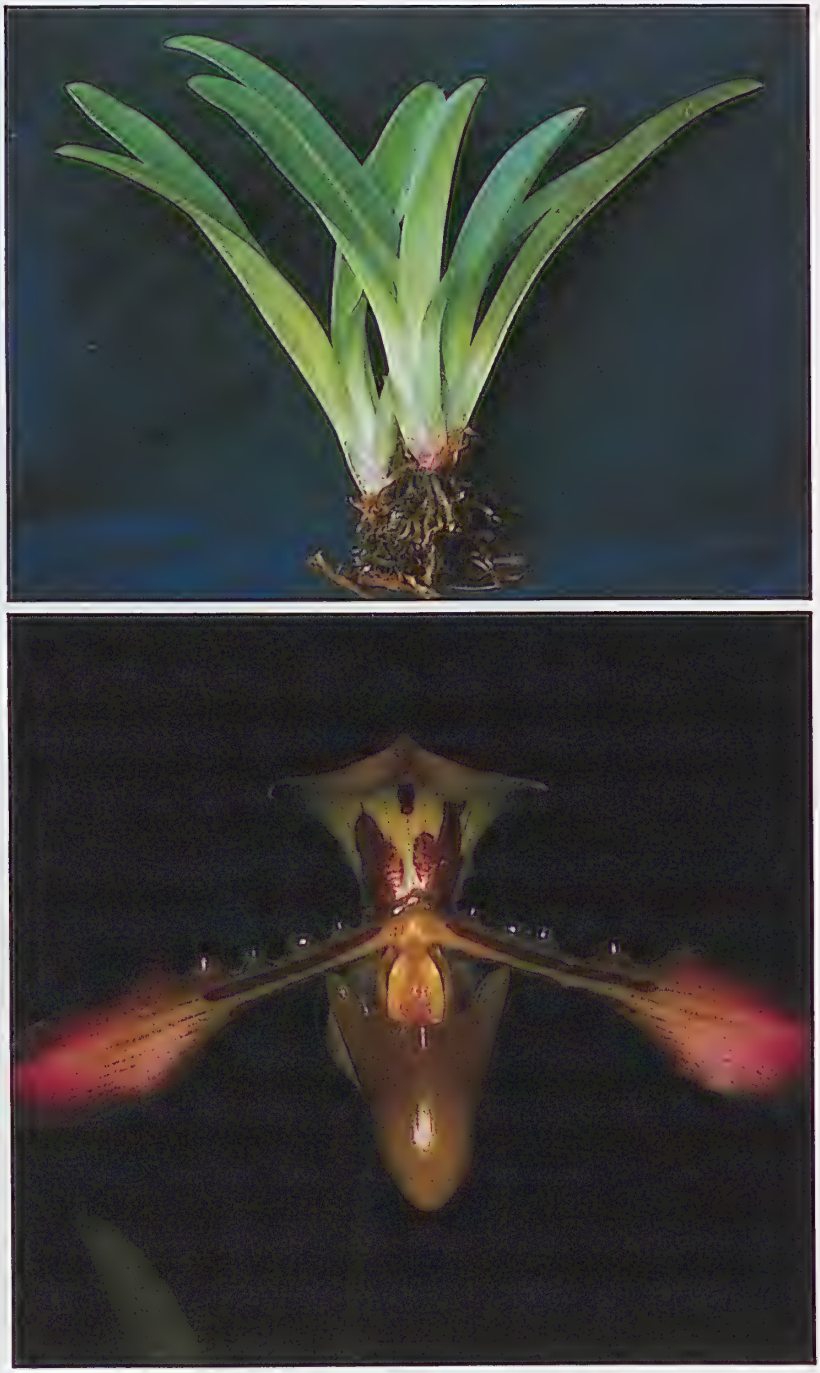
Today botanical nomenclature seems to have drifted back one hundred years, to a time when everything was named either after a friend or a wealthy aristocrat, who payed enough to see his name in lights. I know that it is allowed, however we should be naming plants according to structural or visual attributes rather than creating a name register. Botanical nomenclature today has become a farce. Recently a plant was attempted to be named *P. dollii.* Does this plant look at all like a doll. Of course not — another plant grower.

That aside the question now arises of where to place each species. In the late part and early parts of this century, Pfitzer recognized the need to order the system of classification, partly to make it easier, but mainly so that associations about species and comparisons could be made. Basically it was a human attempt to understand the evolutionary relationships between the various species.

Fowlie has placed the new species in the section Pardalopetalum ("leopard petalled slippers"). This is the area, and only area I have quarrel with Fowlie.

The areas of debate are as follows:

1. The leaves of all the Pardalopetalums are leathery, slow to mature and resistant to periods of intense light and drought. *P. markianum* has very soft *P. villosum* like leaves, very soft and require constant water to retain their turgidity. They mature very quickly (less than 12 months).
2. The scape of most of the Pardalopetalums are from 3 to 8 flowered, (ie) a branched flower scapes, *P. markianum* is only single flowered.
3. The seed of the Pardalopetalums is thinly coated with a protective membrane, (if at all), and much less buoyant than *P. markianum,* whose seed is far more protected and extremely buoyant compared to the former.
4. The staminodes of the Section Pardalopetalum are basically notched, the *P. markianum* is distally entire. Eons ago the species may have been related but this opens the flood gates to an array of postulations.
5. Protocorm development is far different in the two groups. The Pardalopetalums are relatively slow to develop leaves whereas the *P.*



Top: *P. markianum* plant habit. The leaves are very similar in both appearance and texture to *P. villosum* and nothing like any of the Pardalopetalum species. Above: *P. markianum* flower. Note how very similar in overall appearance it is with its other Stictopetalum members.

markianum are very quick. The average protocorms of the Pardalopetalum are 1.5mm before leaf initiation whereas *P. markianum* 0.3mm. The development sequence is also considerably different.

Where then —

1. Development sequence of vegetative production is almost identical to the Stictopetalums.
2. The dormant sheath which protects the flower before initiation is present in *P. markianum* as it is in the other members of the Stictopetalums, splitting to allow exit of flower and scape. This phenomenon has never been in evidence in any of the Pardalopetalums.
3. The rather accentuated undulate margins of the petals are also present in *P. markianum* (as photo shows), undulating in about three days after opening. None of the Pardalopetalums exhibit this.
4. The term Stictopetalum is rather inappropriate for this group (skin pearcing hairs) as some forms of *P. esquirolei* are totally glaborous. The flower of *P. markianum* is also extremely glaborous.

The prominent ridging, or more correctly, undulation of the upper portion of the petals of this section is very noteworthy as no other *Paphiopedilum* exhibits this phenomenon to such a degree. The problem with the photos so far published is that the authors didn't even allow the flower to open properly, such was their rush (does *P. micranthum* classification come back to haunt you — classifying unopened buds).

When the flower first opened I was away but subsequent bloomings and eventual age of the flowers immediately made me think of *P. hirsutissimum* when I walked into the collection and saw them in the distance in flower. As far as I am concerned if *P. markianum* is not the long lost *P. chiwuanum* then it is a new species of the Section Strictopetalum.

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The Australian Orchid Review Vol 55 No1 Feb 1990.
The Orchid Advocate Vol XVi No3 May-June 1990.

Top: *P. esquirolei*. Above: *P. hirsutissimum*

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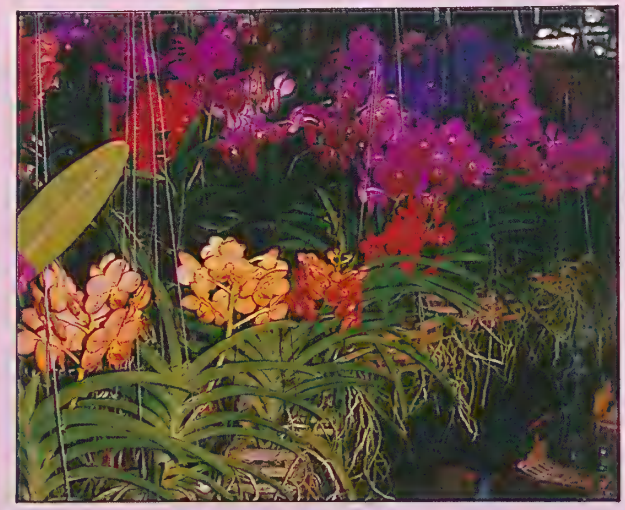

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Holiday Afterthoughts on *Cymbidium* Culture

Part 2

by Peter North-Coombes

TOPICS

Watering
Pest and Disease Control

WATERING

A Nylex Gardena® water computer was installed in early November 1989 and programmed to water each day for 30 minutes from 6 to 6.30pm eastern summer time. It can water the two shadehouses at the same time. The house exposed to rainfall is more shaded and is used for young plants. It is a long narrow structure along the west fence between two homes. If sufficient rain falls, an in-line tap is used to cut off its water supply.

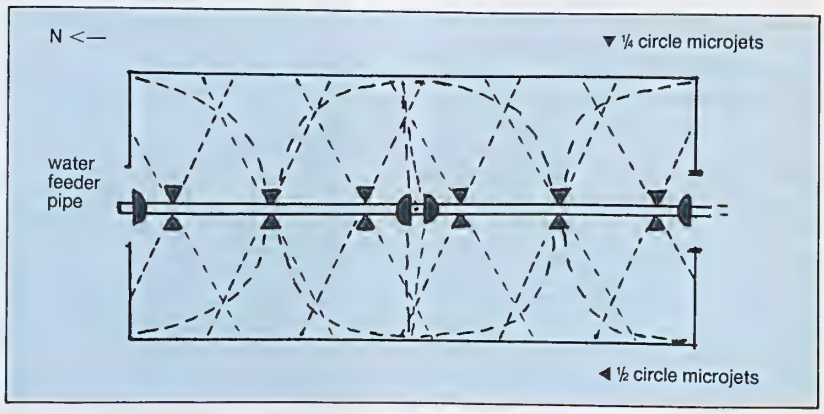
A black poly feeder pipe runs round the top of the young plants' house. Half-circle Hardie-Pope microjets are staggered along its length and quarter-circle jets at two drier corners give even coverage.

On my return I saw that there was more salt at pot drain holes in the flowering house than in the house exposed to rain. Observation during watering revealed that the half-circle jets have water freely draining from the pots after 15 to 20 minutes' daily sprinkling. A full 30 minutes' watering was needed under full circle jets. Even so the top of the potting mix under very leafy plants was not evenly wetted under full circle jets. This could be a factor that predisposes to salting. Higher day temperatures in the poly-covered house would also increase the likelihood of salt deposits. No flushing was given during my two months' absence. The shadehouse exposed to rain coped well and roots coming out of drain holes were healthy. But there again the salt efflorescence appeared at the drain holes after $FeSO_4$ and $MgSO_4$ were reapplied. The efflorescence disappeared after two weeks' watering.

It would really help orchid growers if fertiliser manufacturers could produce a slow release combined Fe and Mg fertiliser with a 3-4 month release period. This should be feasible because slow release $FeSO_4$ is already available in an Osmocote® formulation (25kg packs).

There are two ways to cope with the salting problem in the covered house. One is to hand water and flush the pots every one or two weeks. The other is to increase water delivery with the provision of extra jets. This was done as shown in the diagram.

regular as it used to be, particularly since Nitrophoska Slow Release Fertiliser® (NSRF) became the basal fertiliser used. Some pots topdressed with a mixture of 9-month Osmocote® and Nutricote® still needed flushing as pots with these fertilisers had the heaviest of all salt deposits at the drain holes.



The above layout (System 3) gives an excellent flow of water through the pots. Water delivery has improved considerably as shown in table 1.

Twenty minutes' watering with System 3 were quite sufficient on hot days. On milder days, 15 minutes are adequate at my location.

Flushing does not need to be as

PEST AND DISEASE CONTROL

Insect and Mites

A dressing of long term Disyston 50® granular insecticide was given to all pots on October 30 before leaving. The dose averaged about 3g per pot. For more immediate control, Dimethoate (Rogor®) was sprayed on November 4.

Table 1. Rated Water Delivery for Three Systems using Microjets in Litres (L), Minutes (M)

System	Jets	Poly-covered house using Systems 1-3			Rain-exposed house 7 half + 2 quarter circle jets			Total		
		L/30M	L/20M	L/15M	L/30M	L/20M	L/15M	L/30M	L/20M	L/15M
1	2 half & 3 full circle	132	—	—	238	—	—	370	—	—
2	8 half c	212	—	—	238	—	—	450	—	—
3	4 half & 12 quarter circle	424	282	212	238	158	119	662	440	331

On my return, ten weeks after the Disyston application, there was just mild mite activity and only two visible scales on the leaves in the whole collection. Disyston 50® is easy to apply but is expensive. Its long term effect was quite a boon in the circumstances.

Slugs and Snails

None have been spotted in the well aired flowering house since July 1989. But the growing house exposed to rain has always harboured slugs and the occasional brown garden snail. In 1989 the small flattish predatory snail, *Oxychilus cellarius* established itself in the growing house. These snails are beneficial as they feed mainly on non-green vegetable matter and the larvae of insects. They belong to the same family as the much malinged garlic snail, *O. alliarius* (Smith & Kershaw, 1979).

The slugs like to hide in the piers of stacked bricks which support the benches. I have only once seen a slug on a *Cymbidium* plant, even with regular inspection over the last few years.

Proprietary pellet baits were last used in August 1987. Chemical control is now based on the use of copper sulphate ($CuSO_4$), an effective snail and slug deterrent as reported by Snook (1981). He used fertiliser containing 5% by weight of finely powdered bluestone (equal to a content of 1.26% copper (Cu) element). He applied this mixture liberally between garden plants to successfully control white Italian and brown garden snails.

To avoid using fertiliser on shadehouse floors I used copperised sand (500g $CuSO_4$ to 20kg sand). This sand with 0.62% Cu content (half the concentration used by Snook) was liberally broadcast under the benches and around the shadehouse on October 16. One dead slug was found on October 18 and others were despatched the next day. No more slugs were seen until my departure.

On my return (January 7, 1990) from one to three slugs were seen nearly every night until January 30. This suggested I had not mixed enough $CuSO_4$ with the sand. Bordeaux Mixture, which contains Cu as cupric hydroxide was sprayed for *Glomerella* and general disease control on January 21. Laboratory tests have shown that it is the cupric ion that more effectively kills snails (O'Sullivan et al., 1989). The pests were absent most nights to February 11 when Bordeaux was reapplied. Eleven slugs were seen and despatched between February 11 and March 24. No more slugs were seen alive. Only on dead Leopard slug was seen under the benches on April 17. This suggests it had ventured there, but that by then the Cu level had probably increased to the point where slugs could not survive. I conclude that the shadehouse environment has now become unfavourable to these troublesome molluscs.

Disease Control

I was delighted to read of Taylor's findings (1989a) on the use of Bordeaux Mixture for *Glomerella* control. A rather severe *Glomerella* problem had existed in my collection ever since it suffered from salting in 1987/88. I thought that the plants were not diseased but suffered only from delayed salting stress in 1989. Heavily fertilised soils are reported by Duniway and Gordon (1986, citing many authors) to predispose chrysanthemum, tomato and citrus to *Phytophthora* root rots. The probable reason is given by Ayres and Paul (1986, citing Wyness and Ayres (1985), as being due to salinity increasing water stress in plants, while *Phytophthora* can still release disease spores at relatively high levels of salinity (Duniway and Gordon (1986), citing Blaker and MacDonald (1985)). These findings lead me to believe that pot salinity had an effect on fungal disease incidence in my collection.

A typically diseased specimen was diagnosed by the Plant Research Institute of the Department of Agriculture and Rural Affairs, Victoria, as being infected with *Colletotrichum gleosporioides* (*Glomerella*). This disease is often called Anthracnose. The photograph (below) shows some of the symptoms of dark brown to black infected leaf bases which can be described as *"Collar Rot"* in orchids with pseudobulbs. On younger or more tender growth of ornamentals, Glomerella can produce abundant orangy-pink spore masses on the lesions and the spores can be released by water splash (Richardson, 1989). Hence care in watering can assist in disease control. This is most easily done when using a watering wand with a water breaker and a trigger device. I now only water the centre of a clump when it is very dry and at other times apply the water only to the periphery of the pots up to the base of growing bulbs. I try not to let water get into the axil of the leaves, particularly the lower ones which protect new growths. This cannot be done when using the overhead watering systems. Overhead watering should therefore be

Cymbidium plant with Collar Rot symptoms *(Colletotrichum).*

done when there is a chance of air movement (wind or by fans) to fully dry the foliage between waterings.

Copper oxychloride sprays were used previously in rotation with Mancozeb. There were always some unexplained spots on the underside of leaves of a few cultivars. These symptoms are so similar to the damage caused by copper oxychloride as described by Taylor (1989b), that I have abandoned this fungicide for disease control in Cymbidiums. However, copper oxychloride is not regarded as damaging, while Chlorothalonil (found to be acceptable in New South Wales by Taylor), is reported as damaging to orchid blooms in New Zealand (Amos, 1980). I believe that these conflicting reports just illustrate that some cultivars are more susceptable than others to some phytotoxic effects of fungicides. Many cultivars were not affected by copper oxychloride in my collection while others suffered rather badly.

Systemic fungicides are unable to penetrate *Cymbidium* leaves because of their thick cuticular layer (Taylor, 1989a). We may wonder whether this also applies to systemic insecticides which have been shown to give poor mite control on thick cyclamen foliage (Goodwin, 1990).

I will be using Bordeaux Mixture regularly. It is easily made up and cheap at 7.5 cents per litre. Taylor (1989a) reports that Bordeaux Mixture can damage *Cymbidium* spikes. It does leave a tenacious disfiguring deposit and should not be used on flowers. Spikes that flower well clear of the foliage are well aerated and the best type for resistance to disease infection.

At bud emergence and even when in flower, I have placed supermarket plastic bags over the spikes when spraying, without experiencing any damage from other fungacides or systemic insecticides. This method is only practical for small to medium collections; commercial growers must be more careful of their choice of chemicals.

The use of Bordeaux Mixture should compensate for a lack of, or low concentration of Cu in fertiliser. Provided the potting mix is renewed each two years, the Cu level in it hopefully should not build up to excess (R S Belcher, Personal Communication).

Fruit tree leaves have been found capable of taking up manganese (Mn) and Zinc (Zn) from applied fungicide sprays; the content of Mn and Zn increased within leaf tissue even though cuticular retention occurred (Marcelle, 1986). Cymbidiums have a very thick leaf cuticle and the stomata in orchids occur on the underside of leaves (Morrison, 1989). Presumably some Cu can also enter into leaves through open stomata. It follows that the underside of leaves must be evenly covered by the spray, not only for this possible reason, but also to ensure effective protection from Bordeaux Mixture or indeed any other protectant fungacide.

DOUBLE-SPIKING

Double spike production was evident in April-May 1990 for two cultivars that have not to my knowledge been reported as double-spiking in the literature or orchid catalogues. These cultivars are: 'Nonna Goldilocks' (1st flowering) and Oriental Legend 'Wild Rose' (2nd flowering). These flowerings are to my mind an indication that the fertiliser and cultural methods adopted are at least favourable to good production.

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— Clive Richardson, Plant Research Institute, DARA, for disease identification.

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O.S.N.S.W. Spring Show

The Orchid Society of N.S.W. in conjunction with its Affiliated Societies staged its Spring Show at The Royal Botanic Gardens, Sydney, from 17th to 23rd September. The Show was housed in a very impressive "Hoeker" Pavilion (an aluminium framework with white canvas roofing and side walls and no internal centre poles) measuring 70m x 20m and was filled to capacity with twelve large (16 sq metres) displays and three smaller displays (10 sq metres) by the affiliated societies, two Commercial Exhibitors and numerous individual displays together with Decorative Floral Art Displays.

A feature of the show was the exceedingly high quality of the blooms and presentation of the displays. This view was expressed by many internatinal growers who visited the Show on their return from the 13th World Orchid Conference.

Phal. (Louise Mimms x Oasis) x Joseph Hampton was hybridised, grown and exhibited by Greg Dent. It was indeed worthy of its award and one that we will certainly hear more about in the future.

Paph. lowii 'Beverley' carried three racemes of about 0.9m with a total of 12 flowers and 5 buds. A feature of this plant was its robust growth habit and gives rise to thought that this may be one of the Mount Kinabalu species as plants from this region tend to have this type of growth habit.

On Wednesday, 19th September, His Excellency The Governor of N.S.W. and Mrs Sinclair paid a private visit to the orchid pavilion. They spent considerable time going through the exhibition and showed great interest in them. Prior to their departure, Mrs Sinclair was presented with a white flowering *Phalaenopsis*, which she greatly admired.

GRAND CHAMPION OF THE SHOW.
Phal. (Louise Mimms x Oasis) x Joseph Hampton — Greg Dent

RESERVE CHAMPION OF THE SHOW.
Phal. (Louise Mimms x *P.* Oasis) x *P.* Joseph Hampton — Greg Dent

CHAMPION STANDARD *Cymbidium* HYBRID.
Cym. Lake Macquarie 'Winsome' — T & E Price

CHAMPION INTERMEDIATE *Cymbidium* HYBRID. *Cym.* Bulbarrow 'Friar Tuck' — A. Leece

CHAMPION MINIATURE *Cymbidium* HYBRID.
Cym. Pee Wee — W. Fish

CHAMPION *Cattleya* HYBRID.
Blc. Sylvia Fry 'Wallacia' — D. Bird

CHAMPION *Paphiopedilum* HYBRID.
Paph. Gaymaid 'Tranquility' — W. Hughes

Top left: Grand Champion, Reserve champion and champion *Phalaenopsis* of the show. *Phal.* (Louise Mimms x Oasis) x Joseph Hampton – Greg Dent. Above left: Champion *Intermediate Cymbidium* Hybrid. *Cym.* Bulbarrow 'Friar Tuck' – A. Leece. Top right: Champion *Paphiopedilum* Hybrid. *Paph.* Gaymaid 'Tranquility' – W. Hughes. Above right: Champion Exotic Species. *Paph. lowii* 'Beverley' – W. Johnston.

Champion Specimen Orchid. *Den.* Bardo Rose—Greg Dent.

CHAMPION *Phalaenopsis* HYBRID. (incl. *Doritaenopsis*)
Phal. (Louise Mimms x *P.* Oasis) x *P.* Joseph Hampton — Greg Dent

CHAMPION *Oncidium* ALLIANCE HYBRID.
Wils. Kendrick Williams 'Featherhill' — B & J Page

CHAMPION AUSTRALIAN NATIVE HYBRID ORCHID.
Den. Bardo Rose — P. Woodbury

CHAMPION AUSTRALIAN NATIVE ORCHID SPECIES.
Den. speciosum — Peter Farlow

CHAMPION HYBRID NOT OTHERWISE INCLUDED.
Lyc. Macama 'Taylia' — F. Alcorn

CHAMPION EXOTIC SPECIES.
Paph. lowii 'Beverley' — W. Johnston

CHAMPION ORCHID (NOVICE/JUNIOR). *Cym.* Orkney 'Pink Heather' — Ian Lewis

CHAMPION SPECIMEN ORCHID.
Den. Bardo Rose — Greg Dent

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* A quick trip to Japan to check out the potential for us to import.
* The Melbourne Cup weekend four day clearance sale proved to be a huge success and will now become a regular event.
* A big expansion program with our orchid area doubling in size.

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A.N.O.S. Conference in Wollongong

The First Australasian Native Orchid Conference and Show was held during the last four days of September in beautiful surroundings at the University of Wollongong, on the Leisure Coast of NSW.

In his address, the ANOS President Wal Upton expressed his delight in the success of ANOS in promoting the scientific knowledge, culture and propagation of the native orchids of Australasia, and their preservation in their native habitats. He saw this conference as the peak of ANOS's existence; a great opportunity for like-minded people to share good fellowship and knowledge to the benefit of the orchids we love.

The patron of ANOS, G. Hermon Slade A.M., was often to be seen chatting animatedly between conference sessions with other orchid enthusiasts.

Part of the photographic exhibition at the ANOS conference and show at Wollongong, 27-30th September, 1990.

The conference sessions were held in a lecture theatre in 'the Pentagon', which was well equipped with airconditioning, adjustable lighting, and an effective sound system. The conference papers fitted broadly into four categories, which were interspersed to give variety both in subject matter, and in presentation style.

In the category dealing mainly with culture and breeding, Wal Upton spoke on *Dendrobiums in Australia;* Phil Spence presented on the *Dendrobium Section Latouria,* the majority of whose members occur in New Guinea; Les Nesbitt gave a glowing account of the pleasures that accompany the growing of *Terrestrial Orchids;* David Banks shared his extensive knowledge of *Sarcochilus Hybridization;* Darryl Smedley told of his *Search for the Perfect Mount;* Michael Harrison reminded us that if we manage our *culture* such as to grow good roots on our *epiphytes,* then good plants will follow; and Ted Gregory gave an entertaining discourse on his effective *Line Breeding.*

In the group of lectures with a scientific bias, Dr Peter Adams presented on *Evolution, Pollination, Ecology and Future of Australian Orchidaceae,* and Mark Clements gave us the background to the data for the recently published *Catalogue of Australian Orchidaceae,* and the basis behind many of the changes published in the catalogue.

The group of papers dealing with the study of orchids in their habitat included Len Lawler's amusing account of *Orchids in Far North Queensland,* Tom Reeve on *Orchids in the Highlands of New Guinea,* Dr Brian Malloy on *Orchids of New Zealand — Trans Tasman Link,* and Dr Phillip Cribb from the Royal Botanic Gardens, Kew, sharing his experience in studying *The Little Known Orchids of Espiritu Santo.*

The final section on conservation was led by Graeme Bradburn — *Introduction to the ANOS Conservation Programme,* followed by Dr Jane Mowatt speaking on *CITES and its Implications,* and Dr Kingsley Dixon speaking about *Orchid Conservation in Western Australia.* Dr Phillip Cribb also spoke on *The orchids of the South West Pacific Islands and their Conservation.*

The orchid show and associated sales tables filled the space normally occupied by two basketball courts in the Sports Hall at the Recreation Centre. The many beautiful displays, and individual plants on display benches were a tribute to the skill and care of the exhibitors who had brought plants in flower from as far afield as North Queensland. One display which particularly caught my eye, for its beautiful simplicity, was Les Nesbitt's display of Australian Native Terrestrials, amongst which was the grand champion of the show, *Caladenia patersonii.*

Associated with the show of living orchid flowers was an exhibition of photographs, paintings, drawings, and china paintings, all depicting Australasian native orchids. The photographic section attracted over one hundred prints, and almost as many colour slides. Congratulations to Russell Lea for administering these interesting additions to the show.

The conference banquet on the Saturday night was a most enjoyable event with excellent food and wine, some light-hearted speeches, and the prize-giving. It was a great opportunity to chat convivially with other conference delegates, some of whom had come from Canada, USA, Japan, Switzerland, PNG, NZ and Zimbabwe. All Australian mainland states were represented.

Congratulations to Ron Wheeldon and Dr Andree Millar and all the members of the committee for staging a very successful *1st Australasian Native Orchid Conference and Show.*

Hardy Beilharz
Wahroonga 2076

Cairns Family Snares Reserve Champion

The 13th World Orchid Conference was held in New Zealand from the 9th-16th September. Forty-three countries participated in the great event which is staged in a different country every three years. Scotland is to stage the next in 1993 followed by Brazil in 1996.

Karen and Kevin McFarlane left the warmth of Cairns on Saturday night with their two boxes of selected eye catching blooms and arrived in New Zealand at 6.25am Sunday morning to a chilly 8°C welcome.

It took up to 5pm to set up their display. The judges unenviable mammoth task of trying to select the best from thousands of blooms commenced at 8am Monday. Although the prize winners of different sections were known by late Monday afternoon the two top prizes of Grand Champion and Reserve Champion of the show was only known by a select group of six and was announced at the opening ceremony by Andy Easton President of the New Zealand Orchid Society who was accompanied on stage by a group of dignitaries including the Governor General and New Zealand's famous opera singer Dame Keri-Te-Kanawa who was back in New Zealand to sing at the opening of New Zealand's first opera house. Seats for that event were sold out within twelve hours of opening.

Reserve champion of Show and Silver Medalist – *Vanda* Kasems Delight 'Lloyd'

The Grand Champion of the show went to New Zealand for a *Cymbidium*. The president of the conference said he could hear the shriek of surprise and pleasure from Karen from where he was sitting on stage as the award of Reserve Champion was granted to Karen and Kevin McFarlane of Australia. This is only the second time in thirty-nine years that Reserve Champion has come to Australia. Never Grand Champion as yet. What a great stimulant for orchid growing in Australia and the fact the Reserve Champion came from Cairns should make it more important even from the tourist point of view. The plant, *Vanda* Kasem's Delight 'Lloyd' also received a silver medal plus a trophy for best hybrid of the show.

Below is a complete list of prizes in the magnificent Cairns Display:

RESERVE CHAMPION OF SHOW AND SILVER MEDAL
Vanda Kasem's Delight 'Lloyd'.
BEST HYBRID VANDACEOUS
Vanda Kasem's Delight 'Lloyd'.
BEST *Vanda* HYBRID
Vanda Kasem's Delight 'Lloyd'.
CLASS: 266 *Vanda*, STRAP LEAVED HYBRID
2nd *Vanda* Kasem's Delight 'Lloyd'.
CLASS: 267 *Vanda*, STRAP LEAVED HYBRID, BLUE

1st *V.* Wirat 'chitti', 2nd *V.* Varavuth 'Blue', 3rd *V.* Wirat 'Uthai'.
CLASS: 243 *Ascocenda*
3rd *Ascda* Red Rocks 'Terry'.
BEST *Phalaenopsis* OR ALLIED GENERA FIRST BLOOMING SEEDLING
Phal. Carnival Magic 'Magic'.
CLASS: 297 *Phalaenopsis* OR *Doritaenopsis* HYBRIDS
1st *Phal.* Carnival Magic 'Magic'.
CLASS: 285 *Phalaenopsis* OR *Doritaenopsis* HYBRIDS
2nd *Phal.* Carnival Magic 'Kevin'.
CLASS: 302 MINIATURE FLOWERED *Phalaenopsis* OR *Doritaenopsis*
2nd *Dtps.* Pink Bells 'Lea', 3rd *Dtps.* Oriental Beauty 'Cairns'.
CLASS: 296 *Phalaenopsis* INTERGENERIC HYBRID
1st *Vdnps.* Temptation 'Kevin', 2nd *Vdnps.* Reward 'Cairns', 3rd *Vdnps.* Temptation 'Karen'.
CLASS: 356 *Dendrobium* HYBRID *Dendrocoryne* TYPE
1st *Den.* Ron Kerr 'White'.
CLASS: 205 *Oncidium* SPECIES
3rd *One.* Splenditum 'Cairns'.

The *Phalaenopsis* Intergeneric's bred in Cairns by the McFarlane family caused quite a sensation as they were the first ever exhibited at a World Orchid Conference. Very few registrants had ever seen the Intergeneric blooms, a cross between *Vanda* and *Phalaenopsis.*

Karen was one of the invited guest speakers at the conference. Her paper entitled "Generalising of the Australian Vanda Connection" was delivered with slides on Friday morning to a packed auditorium, she received a great ovation from an enthusiastic audience. Many other scientific papers and those effecting the average grower covered the whole spectrum of orchid cultivation and will be printed in the "13th W.O.C. Proceedings" to be published in the near future.

The gates opened to the public at 10am Wednesday where about 2000 people queued at the entrance. The show received wide television coverage so the halls were packed with people until closing at 5pm Sunday.

The Overseas displays were staged in a special quarantine hall but open for public inspection.

No fluke – Australians are noted to be the best knockers in the world of local achievements but after winning the best *Vanda* in 1987 at the World Orchid Conference in Tokyo and again best *Vanda* of the show in 1990 World Orchid Show. One would have to agree Australian orchids are pretty good.

First prize – *Vdnps.* Temptation 'Kevin'.

orchids from *Karen McFarlane*

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BEST BLUE *VANDA* HYBRID - 1st., 2nd., 3rd.

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ADDRESS EDITORIAL TO:
The Editor, Australian Orchid Review, 90 Great Western Highway, Blaxland, NSW 2774, Australia.

EDITORIAL ASSOCIATES:
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Mr Frank Oelkers, 419 Robinson Road, Geebung 4034.
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contact these secretaries:
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NORTHERN TERRITORY: Honorary Secretary, P.O. Box 38493, Winnellie 5789.
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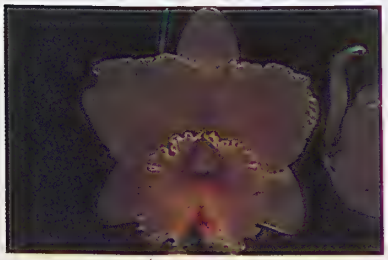

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